

Fig.1

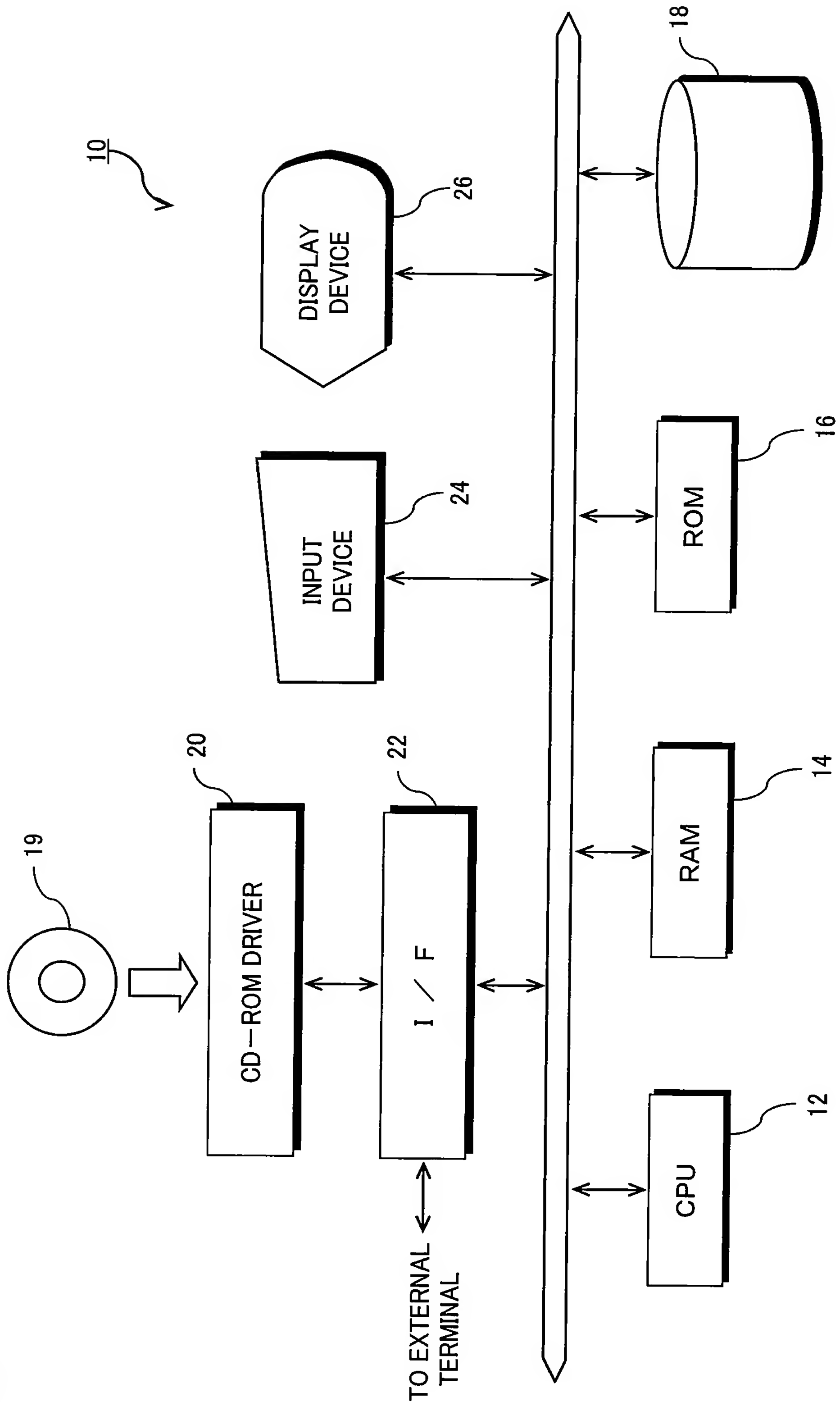


Fig.2A

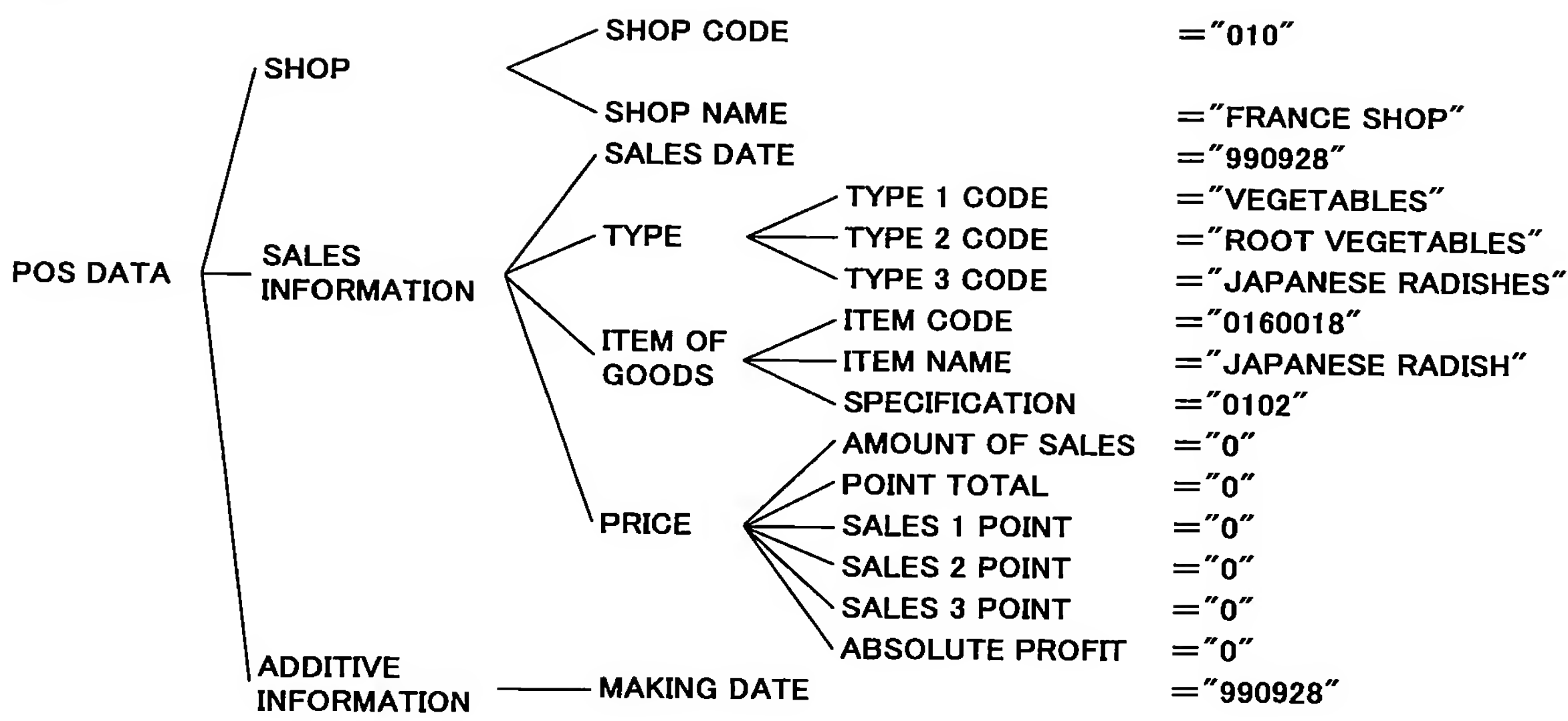


Fig.2B

```
<posdata>
  <shop>
    <shopCode>010</shopCode>
    <shopName>FRANCE SHOP</shopName>
  </shop>
  <salesInformation>
    <sellDate>990928</sellDate>
    <class>
      <class1 code="01">VEGETABLES</class1>
      <class2 code="01">ROOT VEGETABLES</class2>
      <class3 code="01">JAPANESE RADISHES</class3>
    </class>
    <goods>
      <goodsCode>"0160018"</goodsCode>
      <goodsName>JAPANESE RADISH</goodsName>
      <standard>0102</standard>
    </goods>
    <price>
      <amountOfSales>0</amountOfSales>
      <amountOfPoints>0</amountOfPoints>
      <sales1 point="0">0</sales1>
      <sales2 point="0">0</sales2>
      <sales3 point="0">0</sales3>
      <grossProfit>0</grossProfit>
    </price>
  </salesInformation>
  <additionalInformation>
    <createdDate>990928</createdDate>
  </additionalInformation>
</posdata>
```

Fig.3A

OVERALL TREE

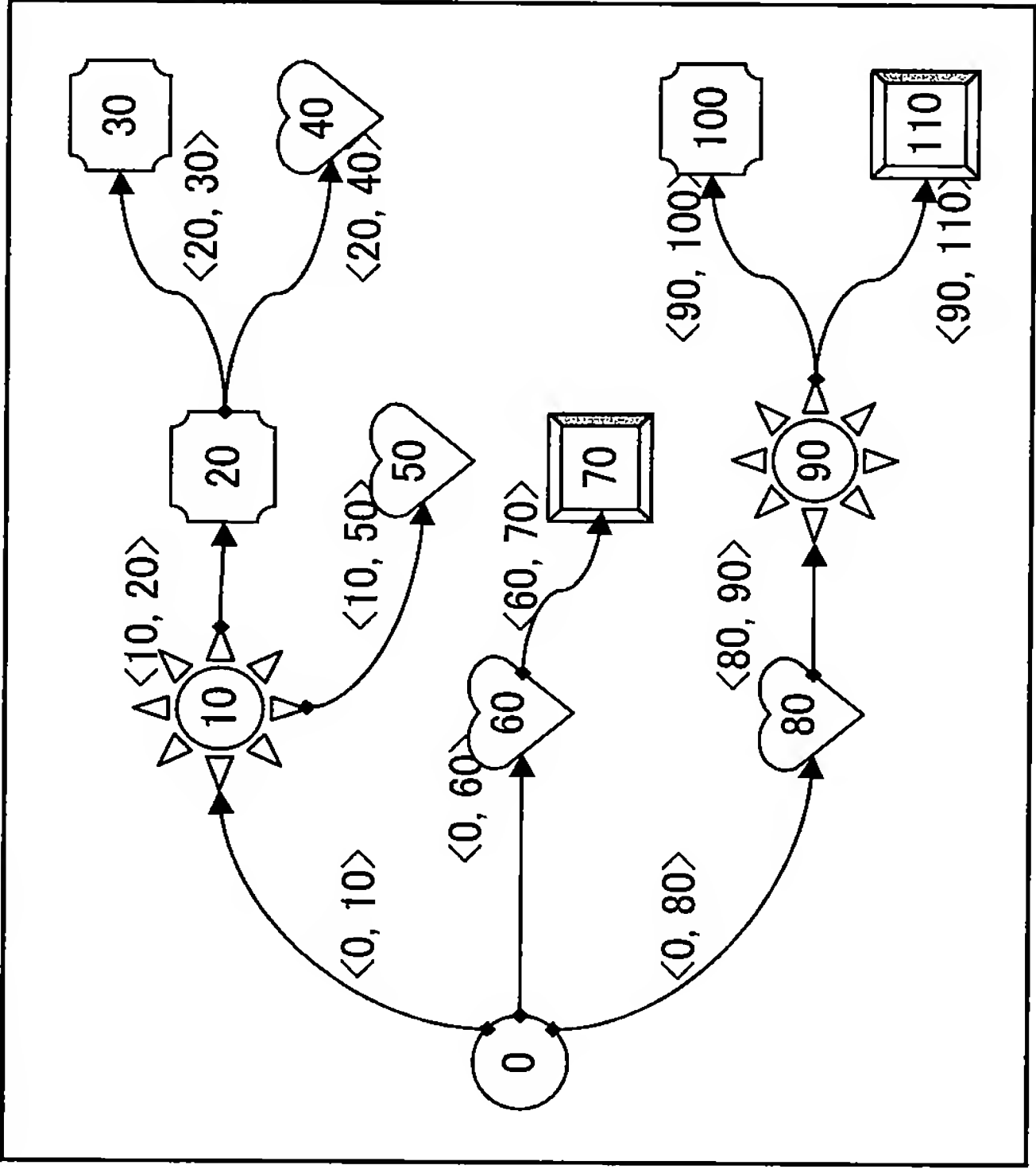


Fig.3B

ARC LIST		
From-ID	To-ID	
0	0	10
1	0	60
2	0	80
3	10	20
4	10	50
5	20	30
6	20	40
7	60	70
8	80	90
9	90	100
10	90	110

Fig.3C

NODE LIST		
ID	Type	
0	0	Root
1	10	Sun
2	20	Sqr
3	30	Sqr
4	40	Heart
5	50	Heart
6	60	Heart
7	70	Btn
8	80	Heart
9	90	Sun
10	100	Sqr
11	110	Btn

Fig.4A

OVERALL TREE

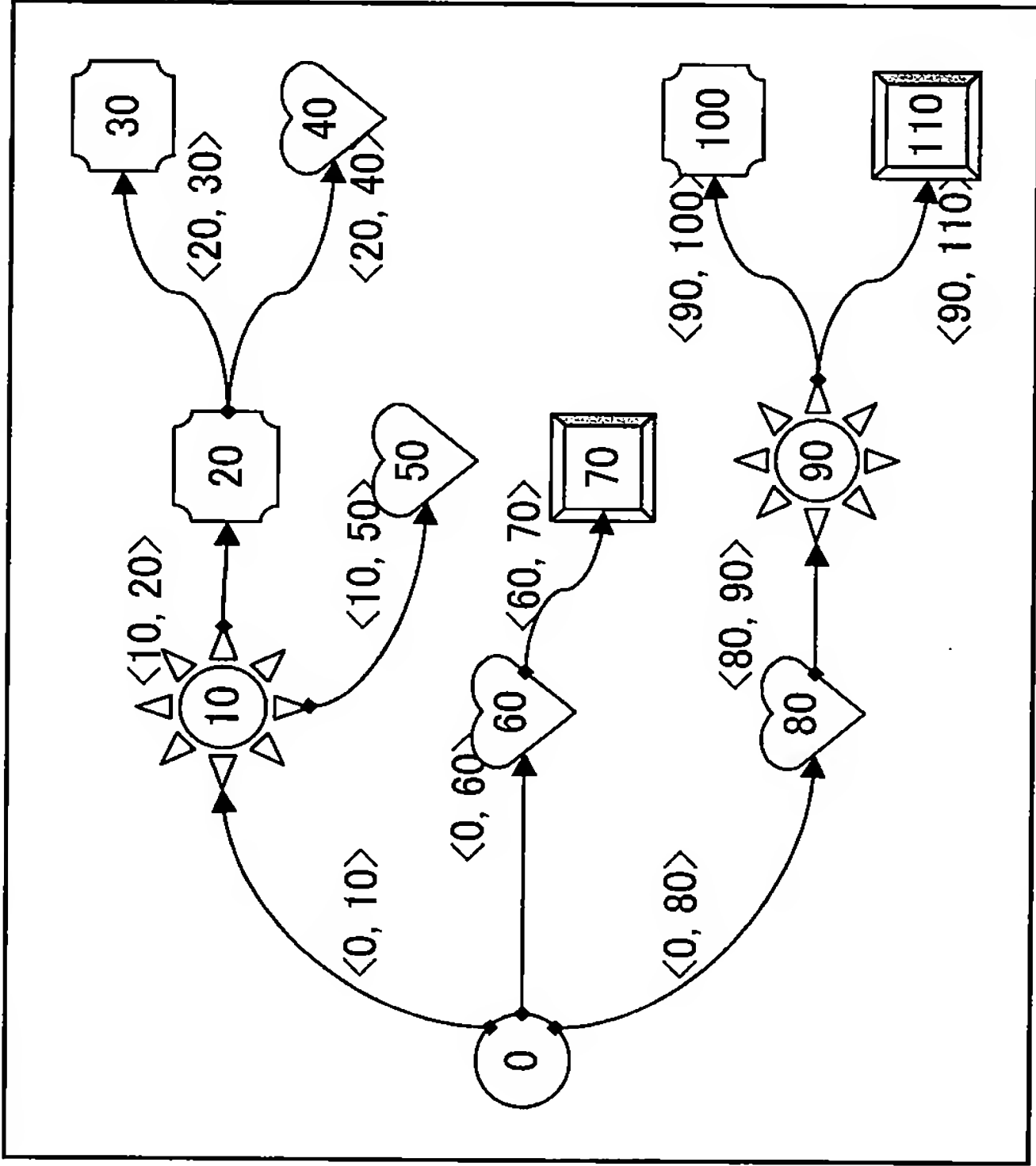


Fig.4B

ARC LIST:
"CHILD→PARENT"
RELATIONSHIP

To-ID From-ID	
0	-
10	0
20	10
30	20
40	20
50	10
60	0
70	60
80	0
90	80
100	90
110	90

Fig.4C

ARC LIST:
"CHILD→PARENT"
RELATIONSHIP

To-ID From-ID	
10	0
20	10
30	20
40	20
50	10
60	0
70	60
80	0
90	80
100	90
110	90

Fig.5

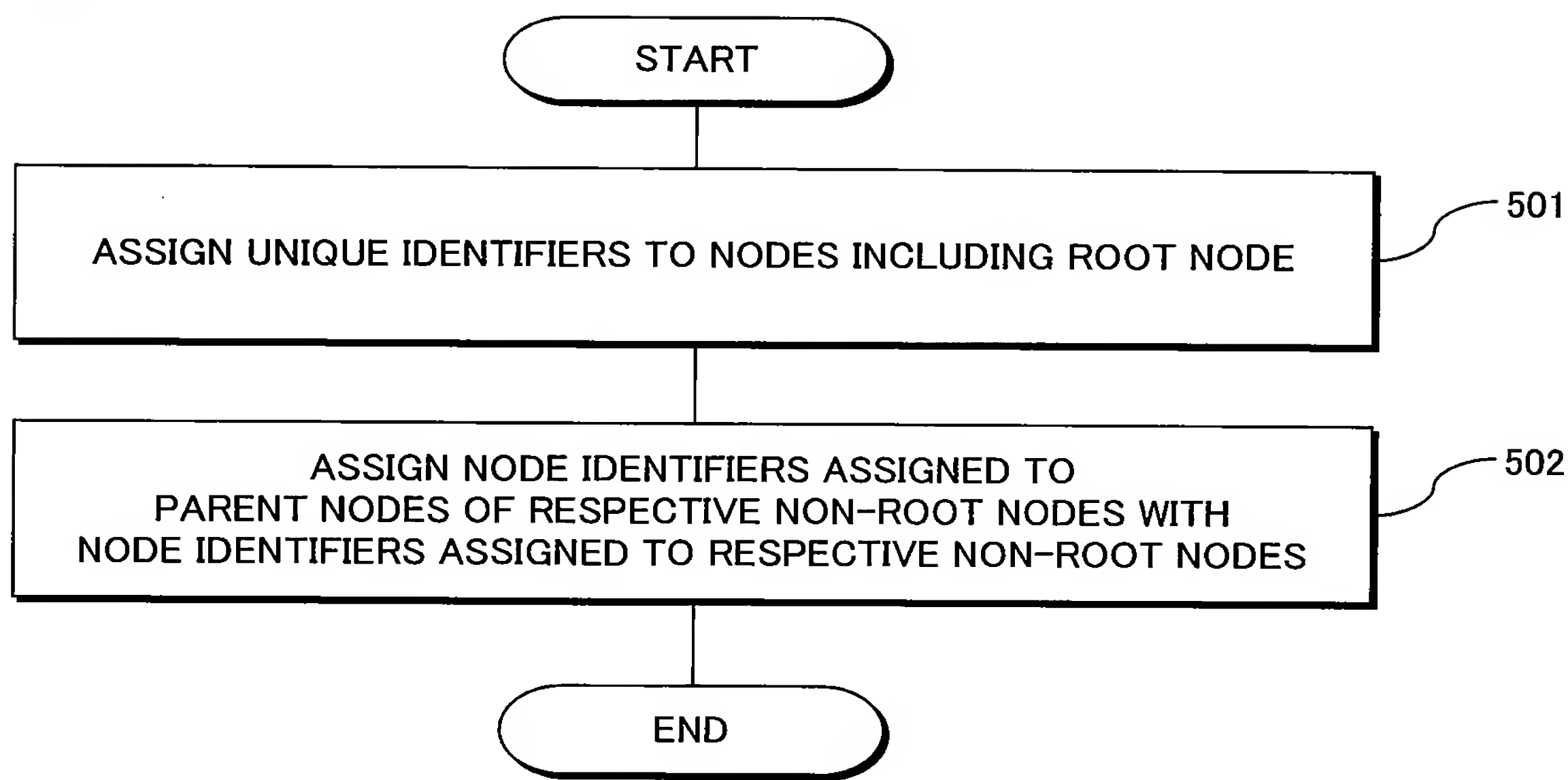
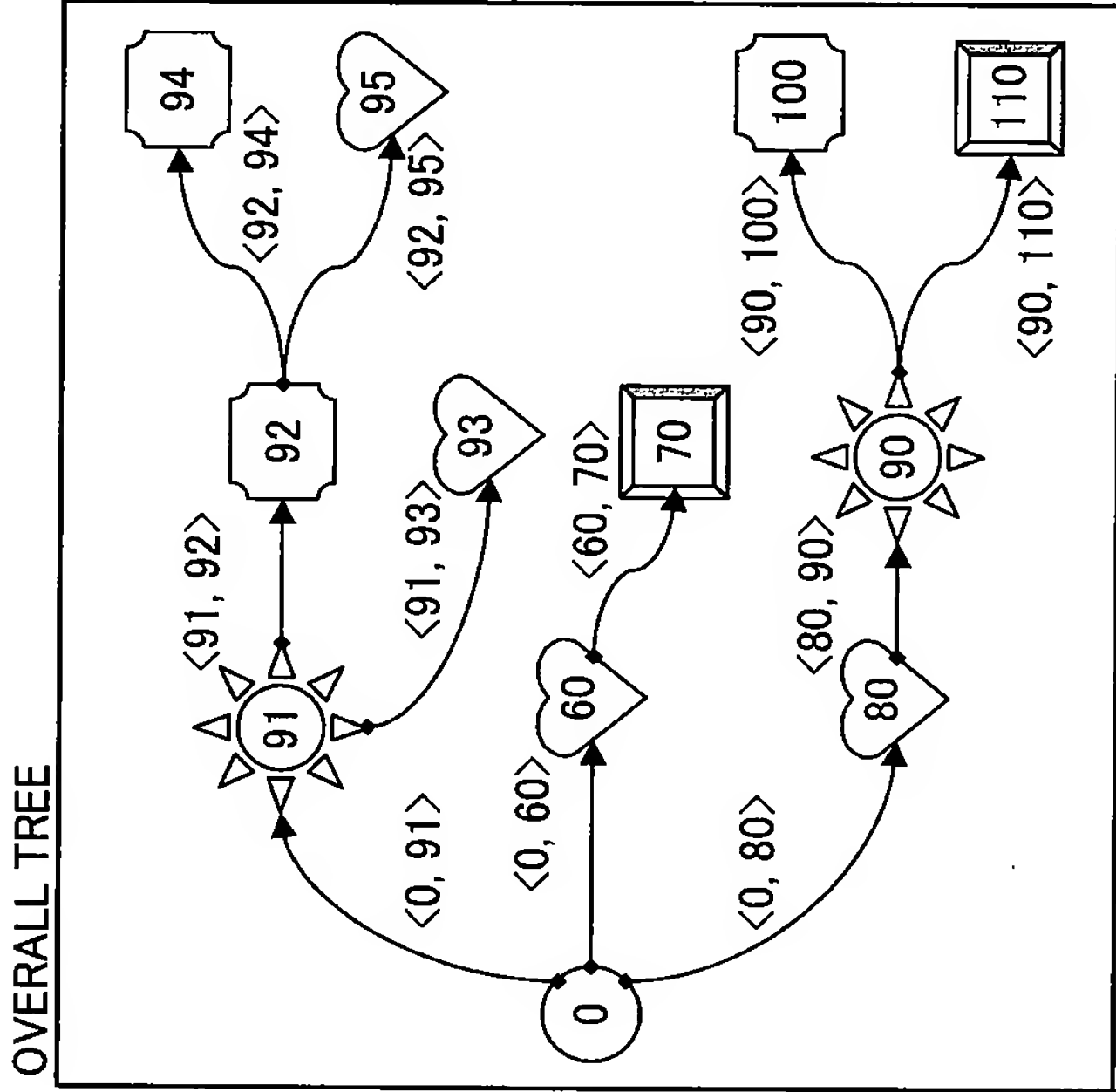


Fig.6A

DESCRIPTION BASED ON ID



ID→No.	0	1	2	3	4	5	6	7	8	9	10	11
CONVERSION	→	→	→	→	→	→	→	→	→	→	→	→
TABLE	0	91	92	93	94	95	60	70	80	90	100	110

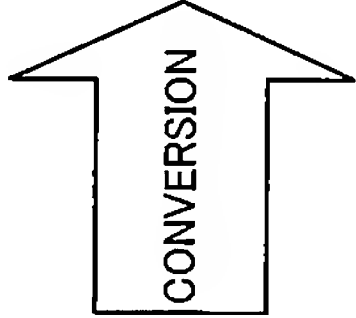


Fig.6C

DESCRIPTION BASED ON No. (DEPTH-FIRST)

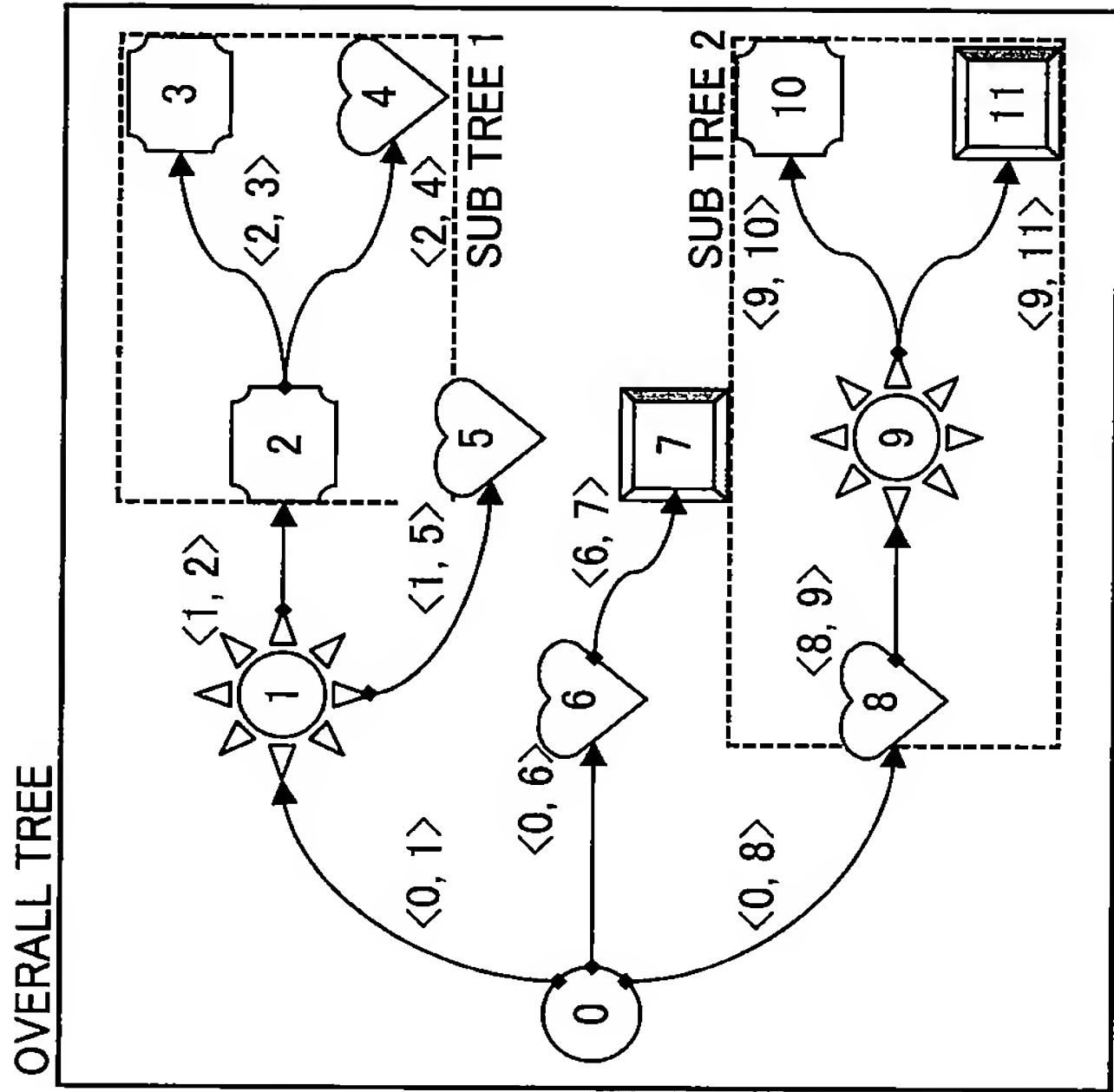
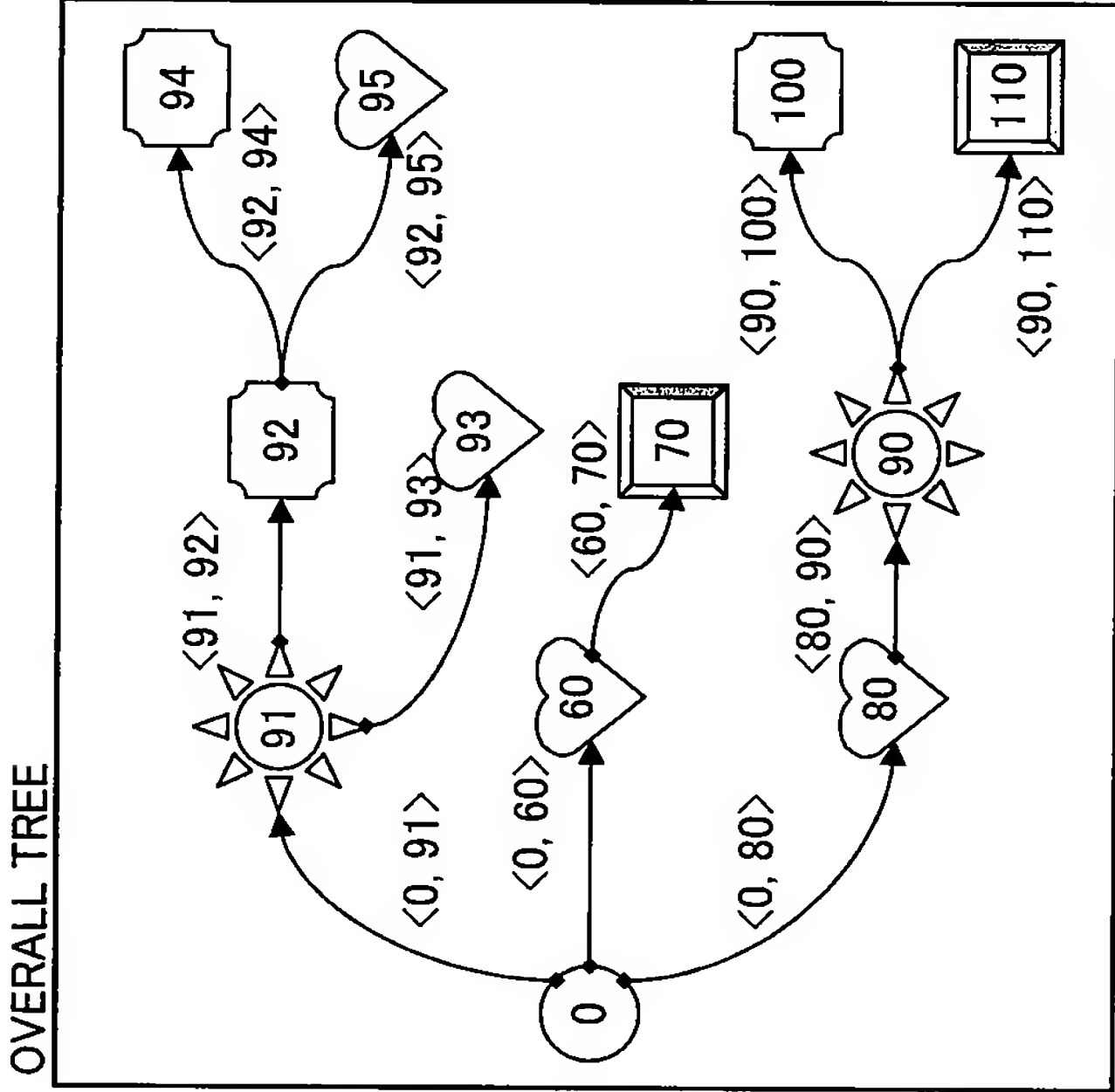


Fig.7A

DESCRIPTION BASED ON ID



ID→No.	0	91	92	93	94	95	60	70	80	90	100	110
CONVERSION	→	→	→	→	→	→	→	→	→	→	→	→
TABLE	0	1	4	5	8	9	2	6	3	7	10	11

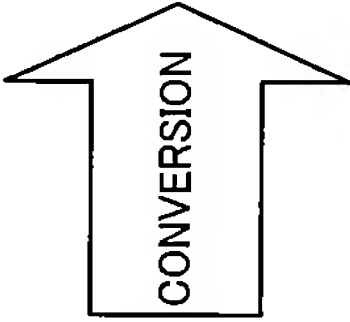


Fig.7C

DESCRIPTION BASED ON No. (WIDTH-FIRST)

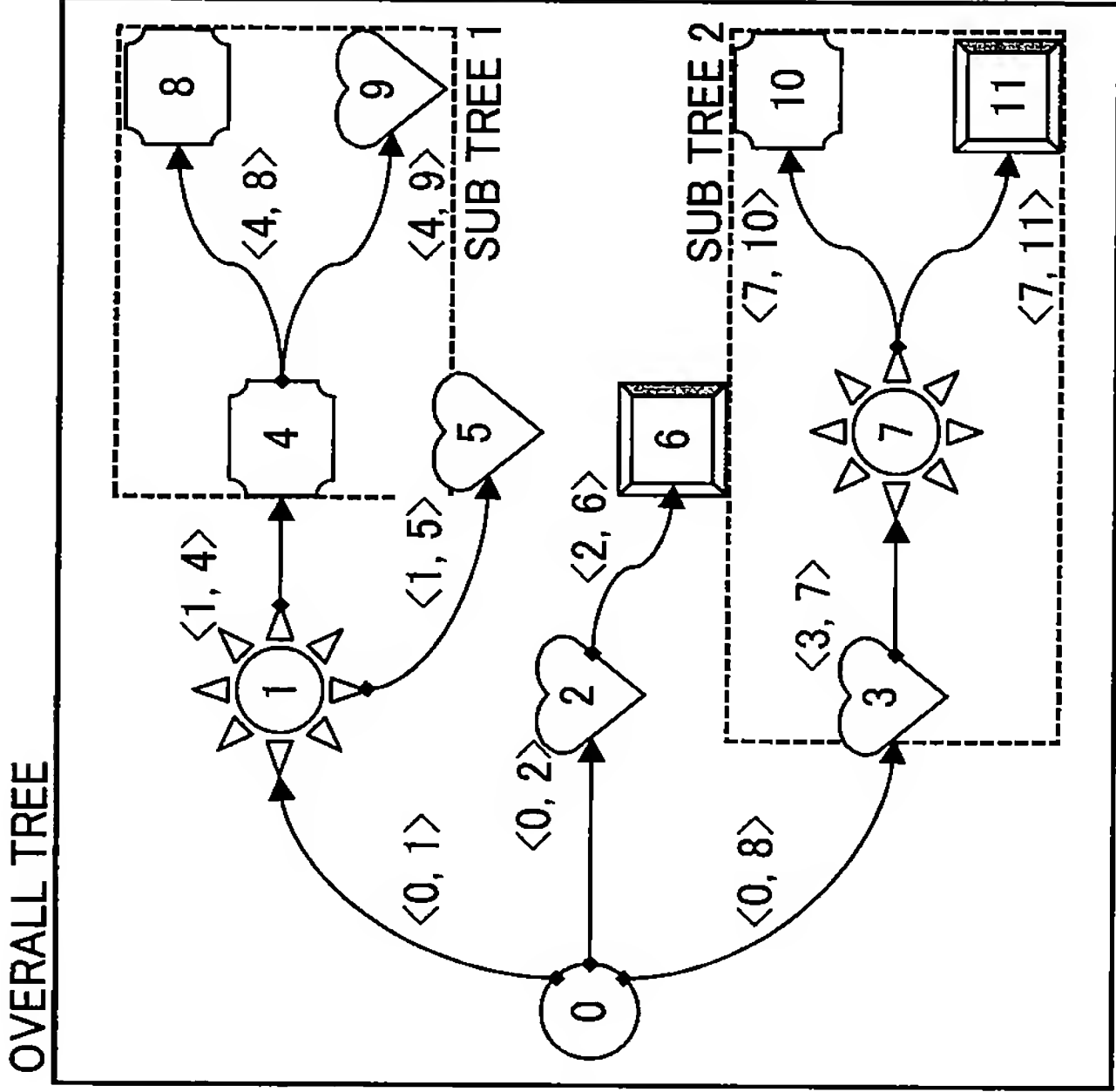


Fig.8

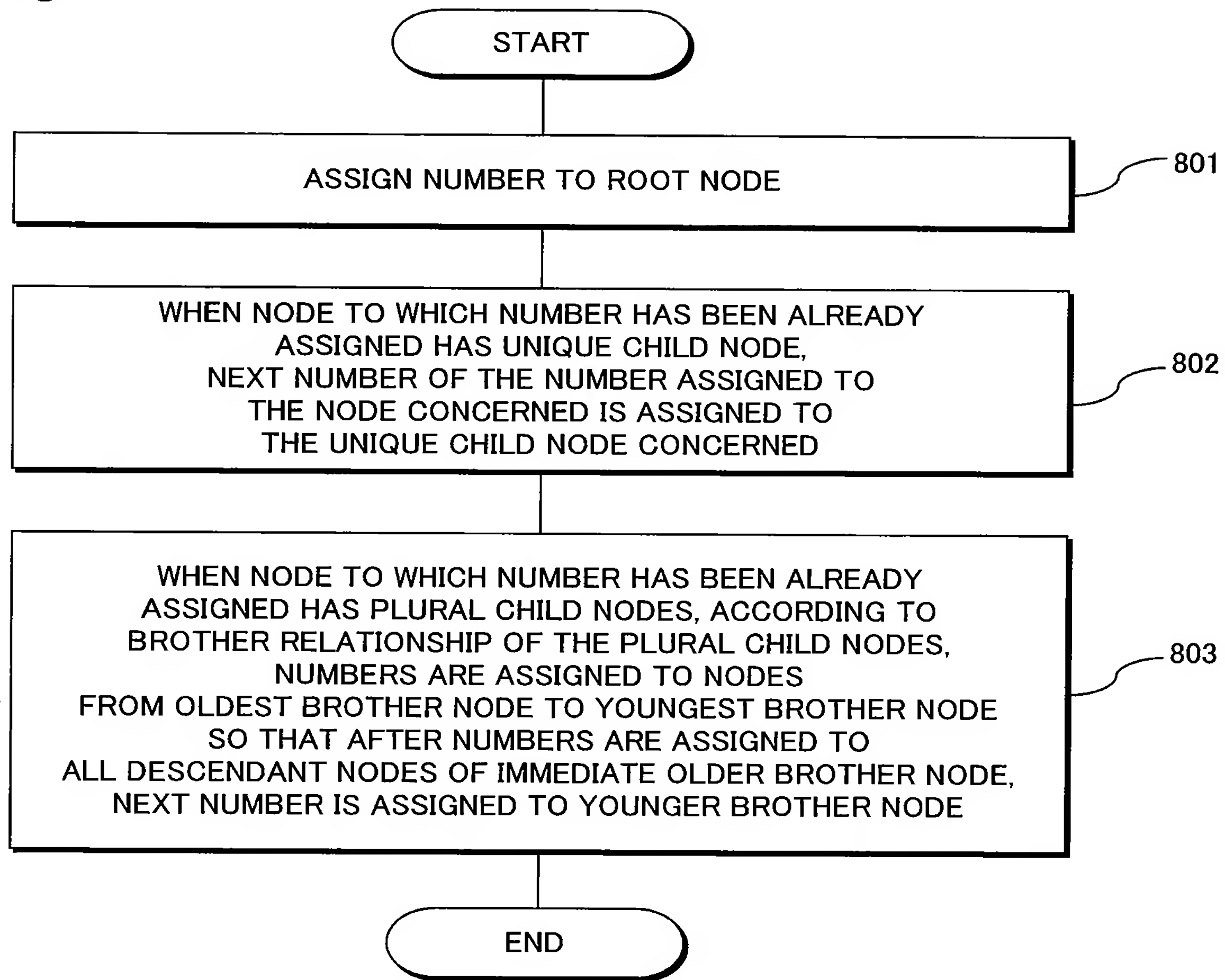


Fig.9

ARRAY OF PARENT-CHILD RELATIONSHIP
BASED ON "CHILD→PARENT" RELATIONSHIP OF DEPTH-FIRST

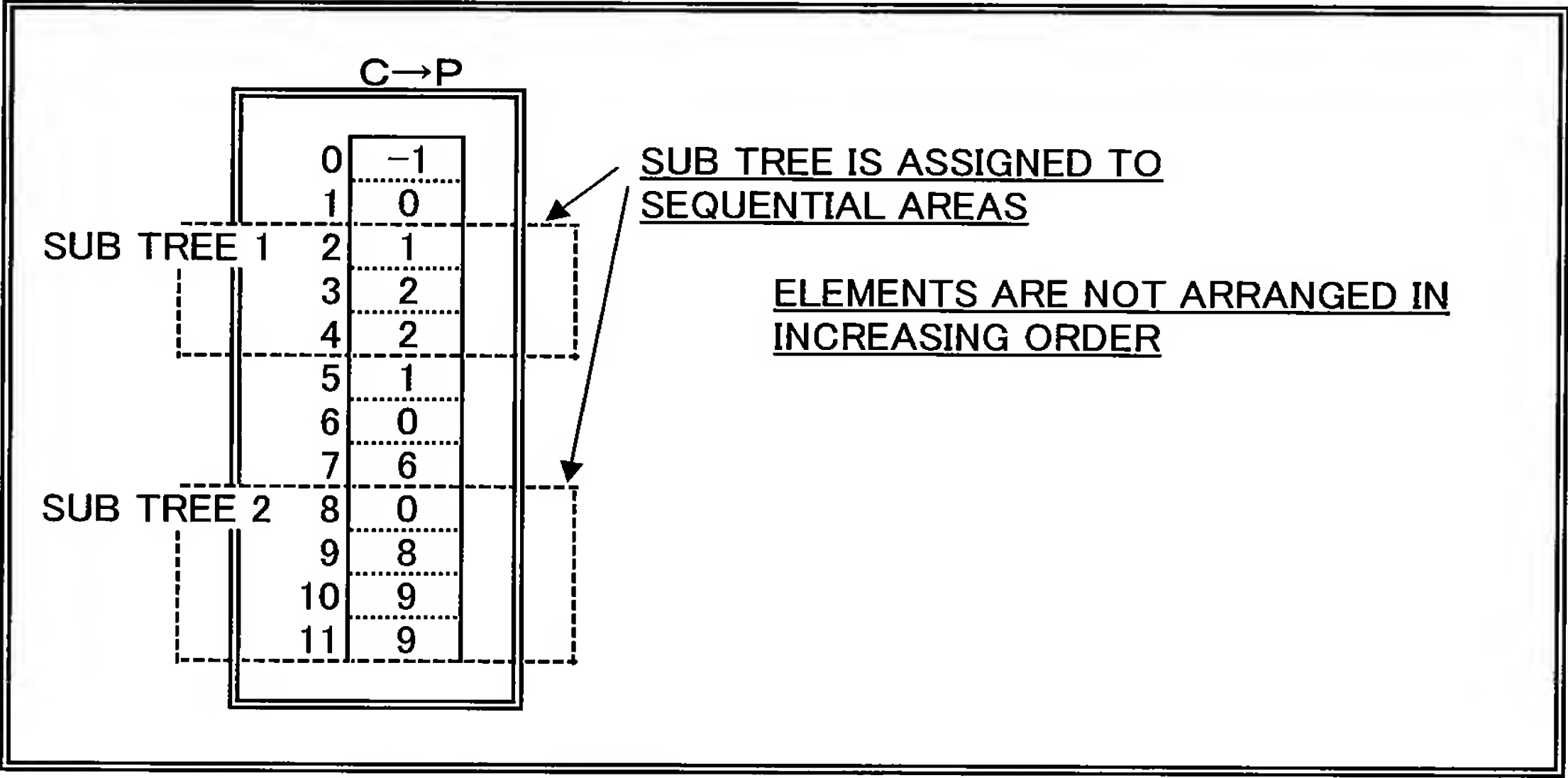


Fig.10

ARRAY OF PARENT-CHILD RELATIONSHIP
BASED ON "PARENT→CHILD" RELATIONSHIP OF DEPTH-FIRST

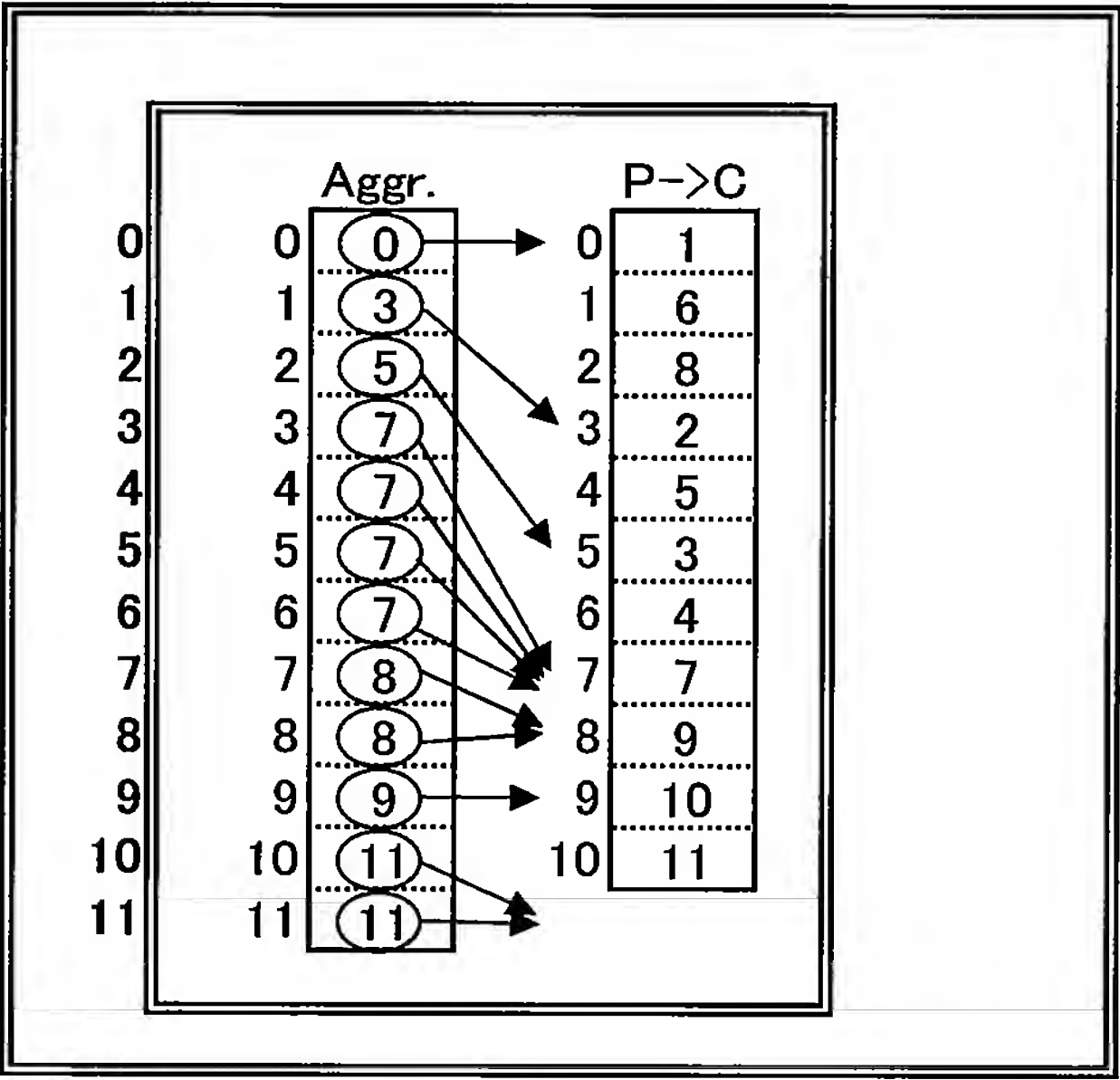


Fig.11

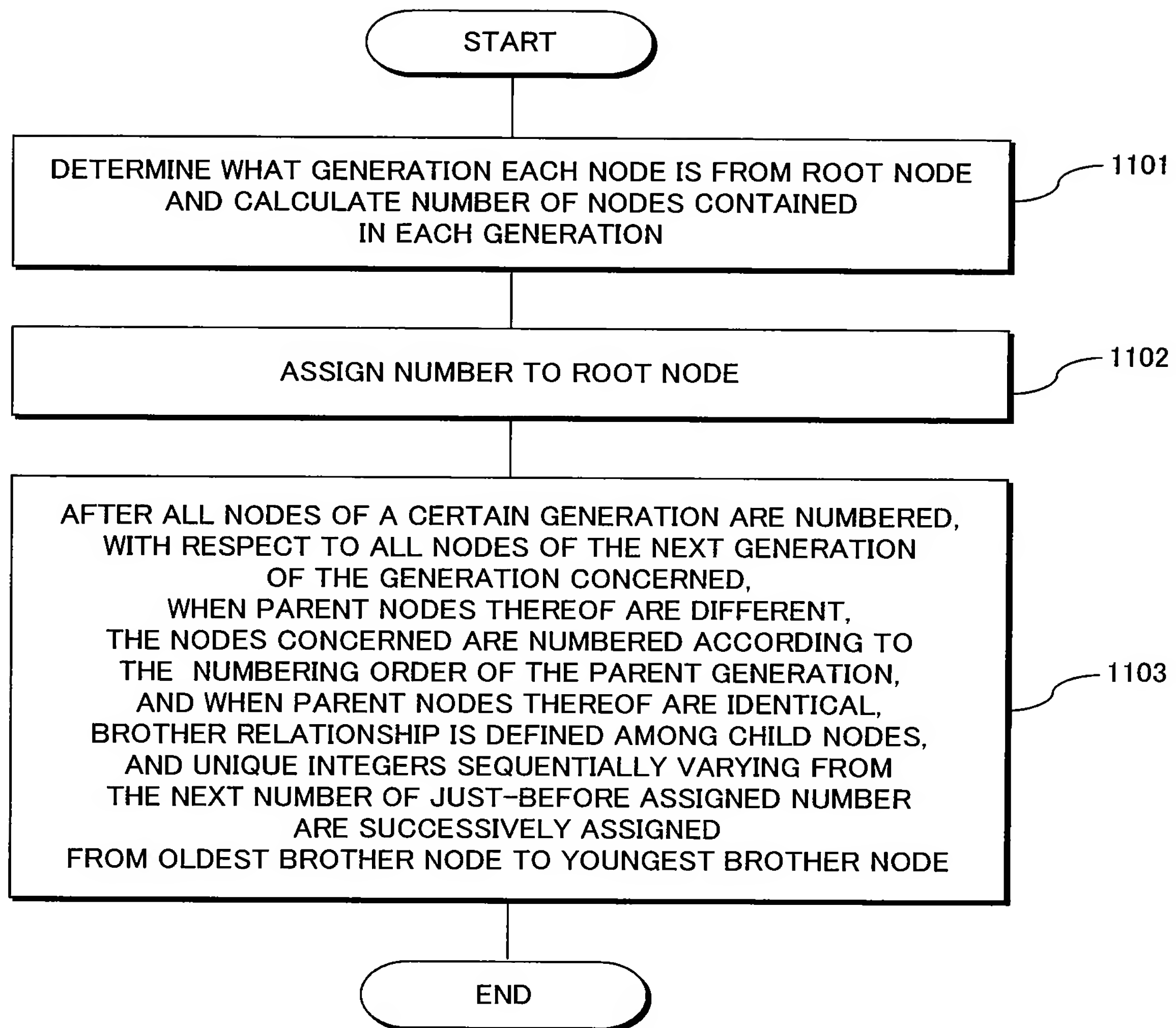


Fig.12

ARRAY OF PARENT-CHILD RELATIONSHIP
BASED ON "CHILD→PARENT" RELATIONSHIP OF WIDTH-FIRST

ELEMENTS ARE ARRANGED IN INCREASING ORDER

EXPRESSION BASED ON CHILD→PARENT

C→P	
0	-1
1	0
2	0
3	0
4	1
5	1
6	2
7	3
8	4
9	4
10	7
11	7

CHILD NODES 1,2,3 OF PARENT NODE 0

CHILD NODES 4,5 OF PARENT NODE 1

CHILD NODES 8,9 OF PARENT NODE 4

CHILD NODES 10,11 OF PARENT NODE 7

Fig.13

ARRAY OF PARENT-CHILD RELATIONSHIP
BASED ON "PARENT→CHILD" RELATIONSHIP OF WIDTH-FIRST

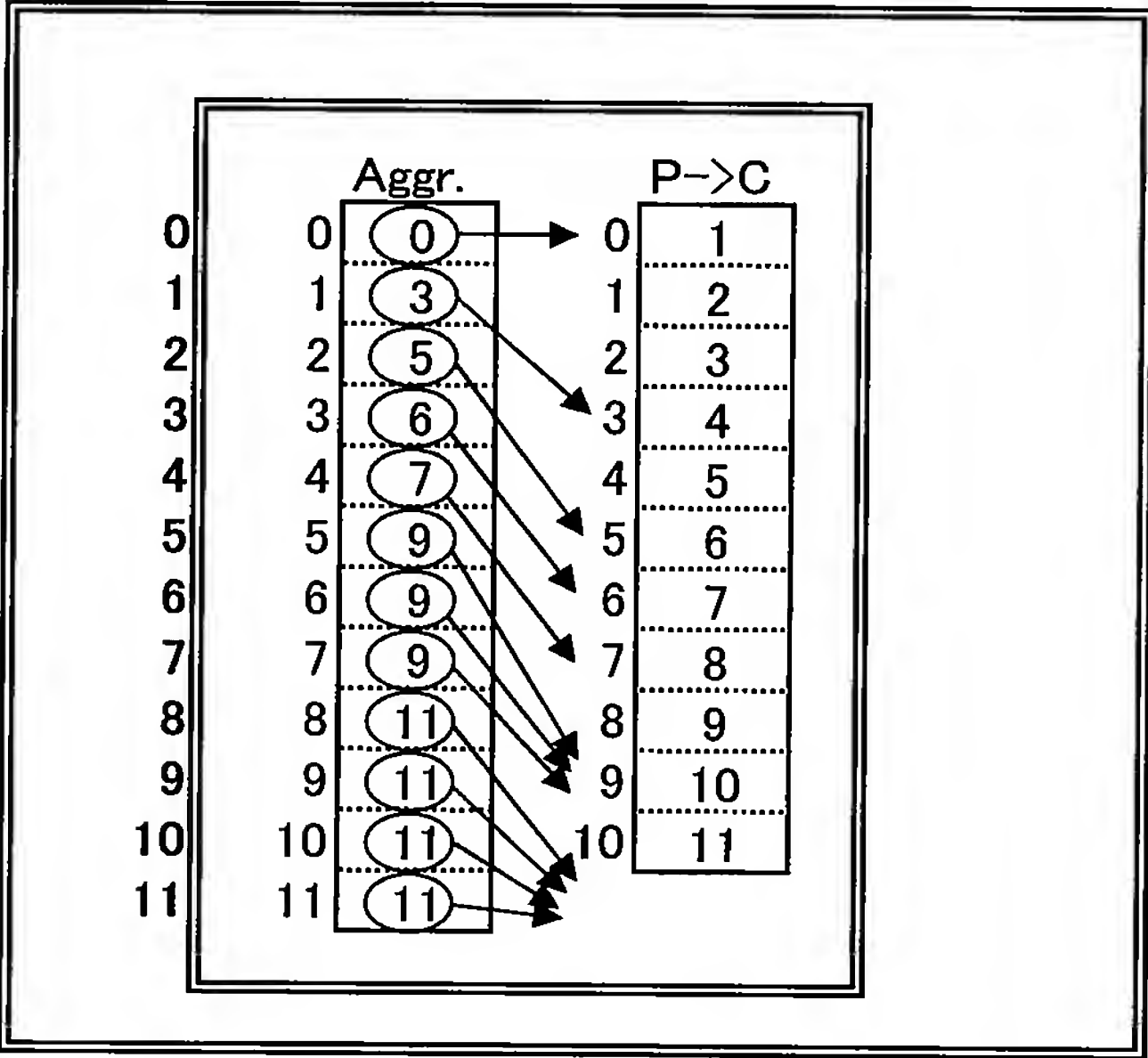


Fig.14

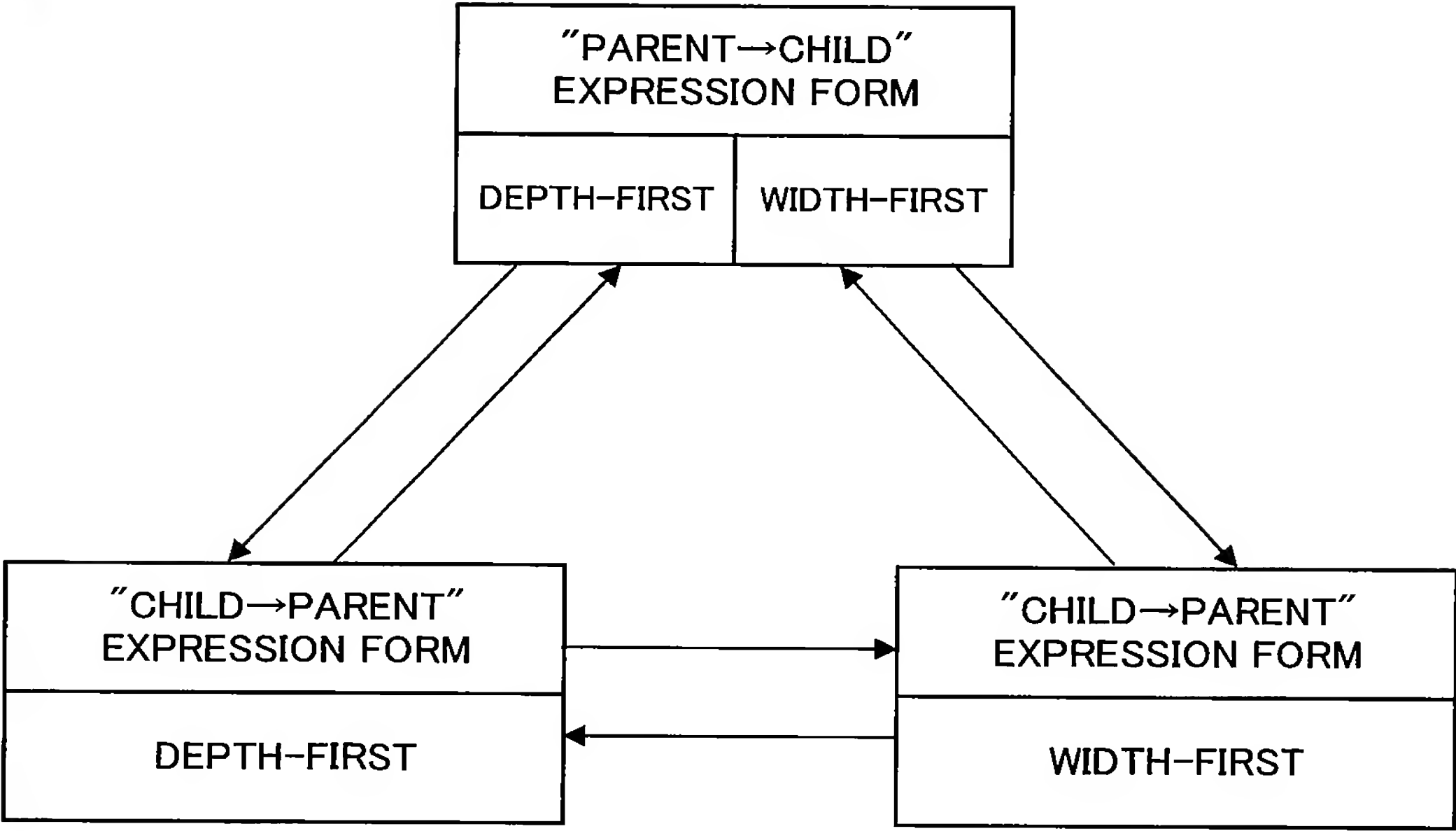


Fig.15

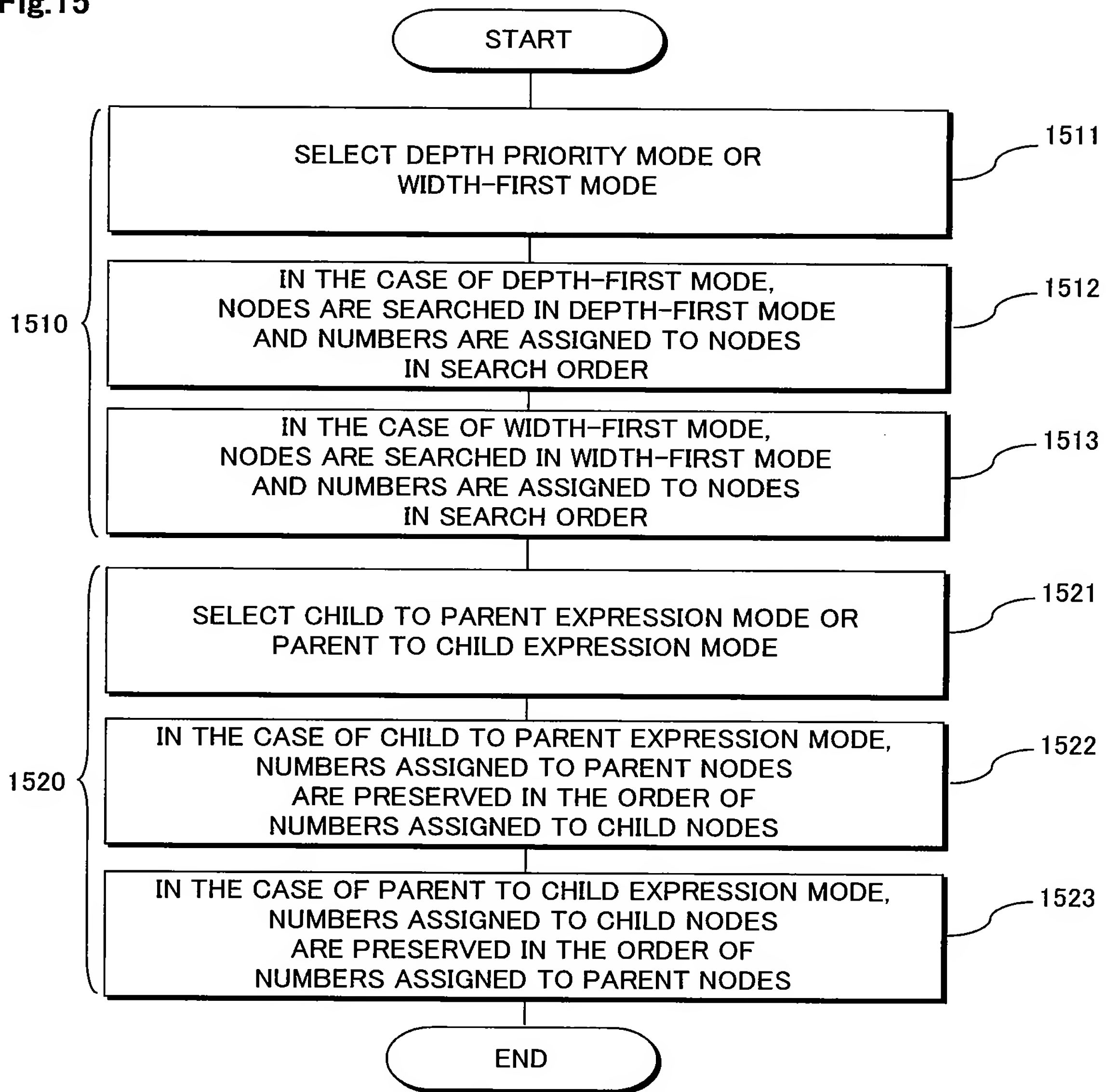


Fig.16A

DEPTH-FIRST "CHILD→PARENT" EXPRESSION

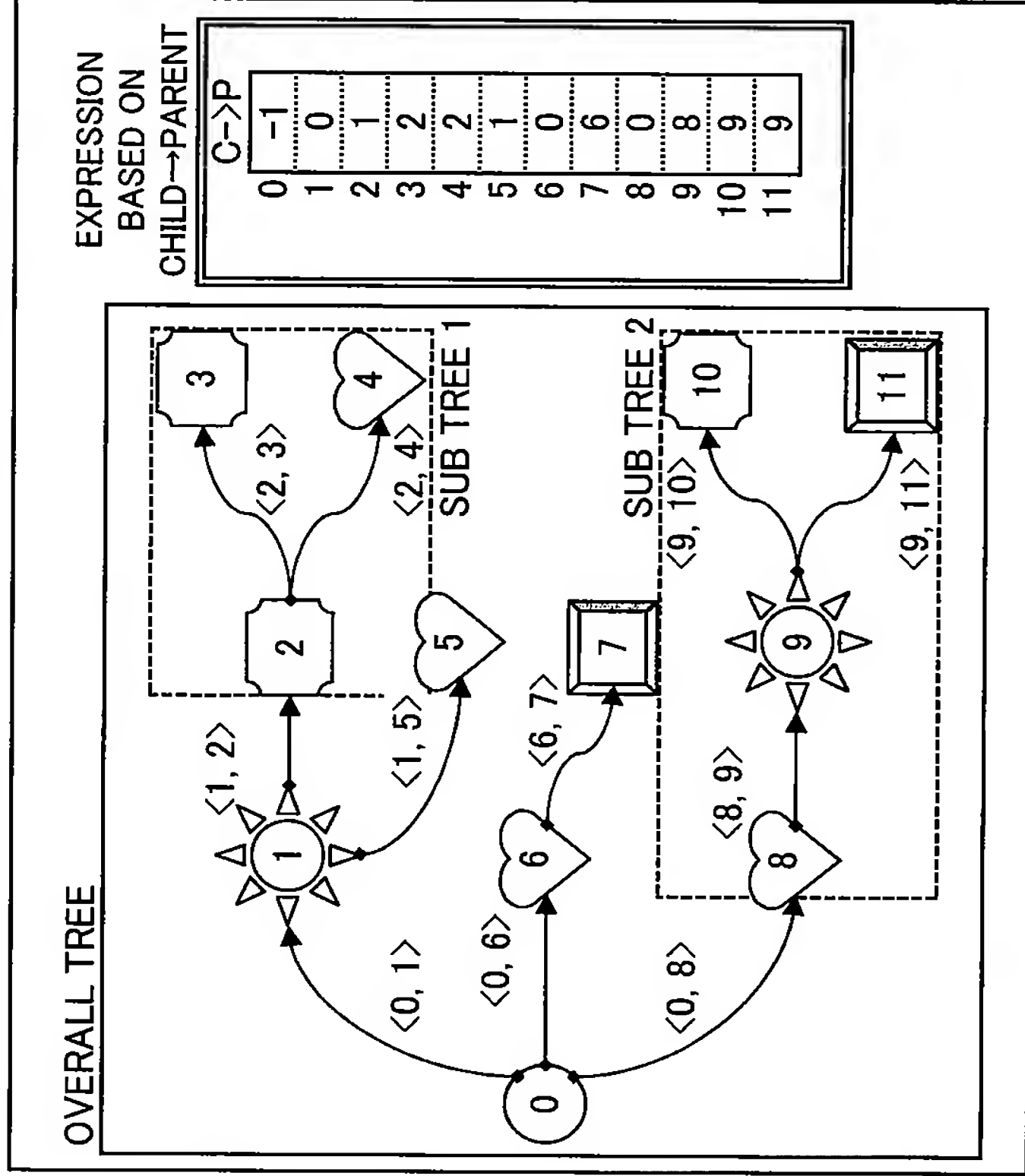


Fig.16B

WIDTH-FIRST "CHILD→PARENT" EXPRESSION

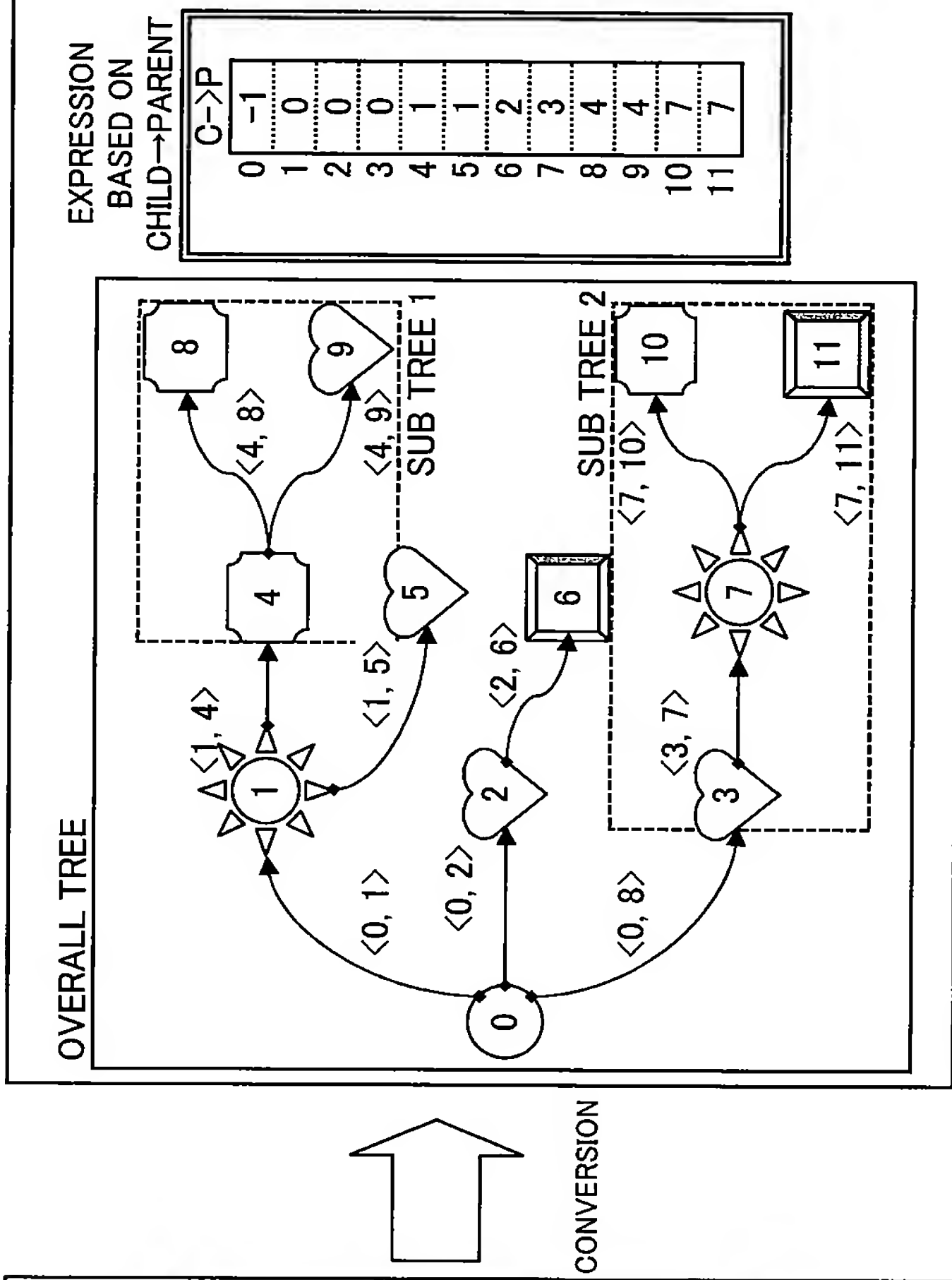


Fig.17

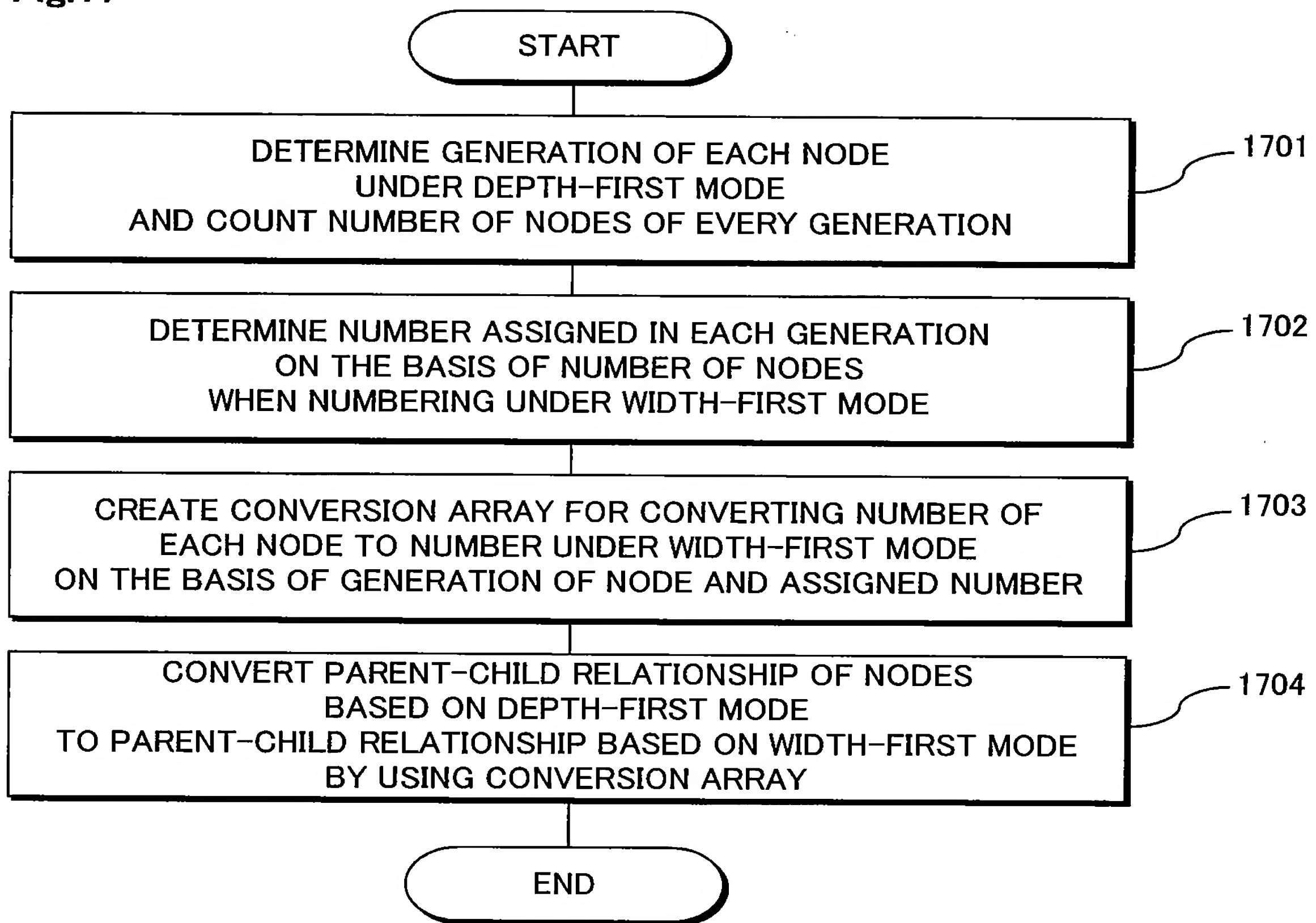


Fig.18A

PROCEDURE 0

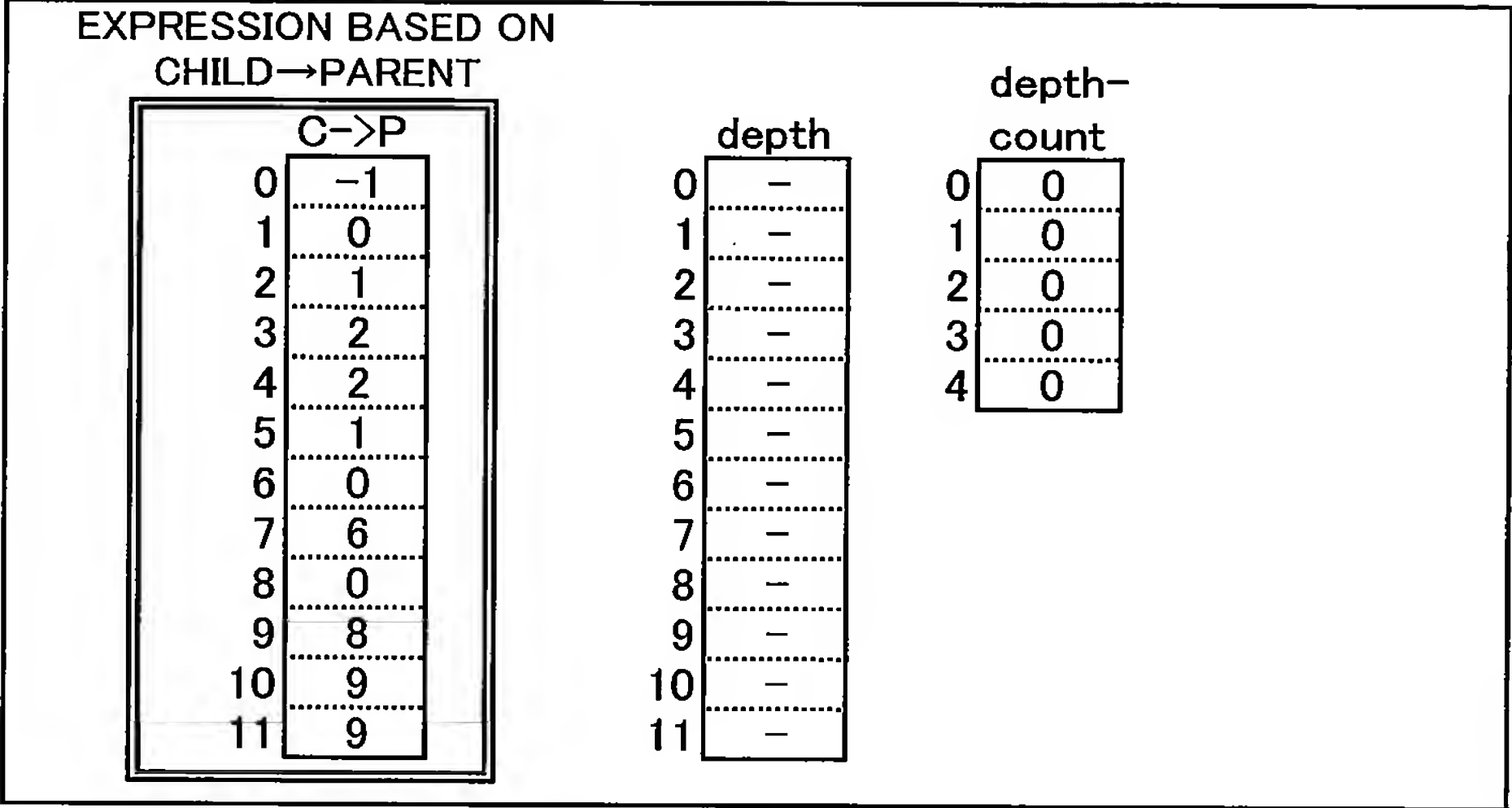


Fig.18B

PROCEDURE 1

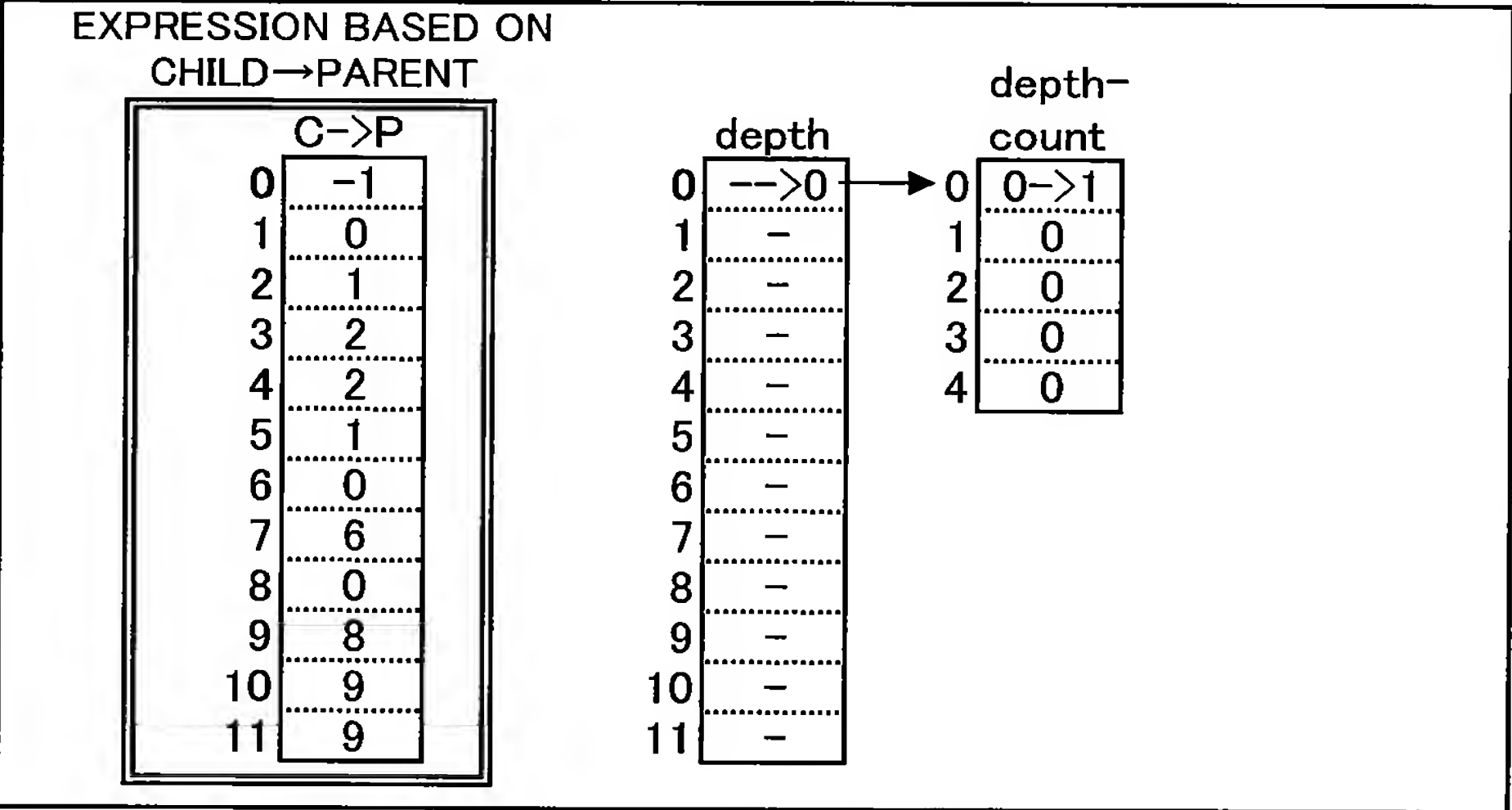


Fig.18C

PROCEDURE 2

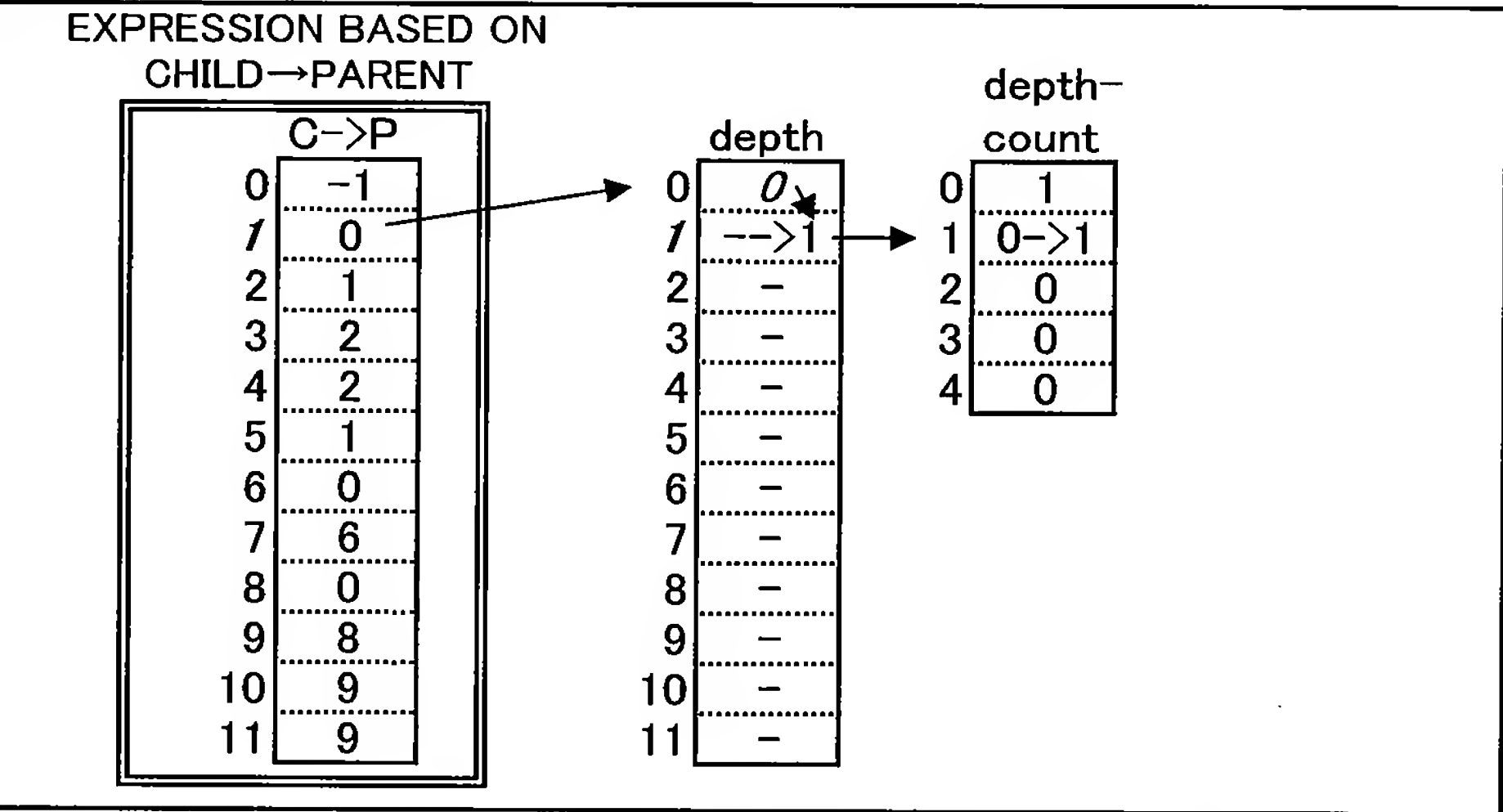


Fig.19A

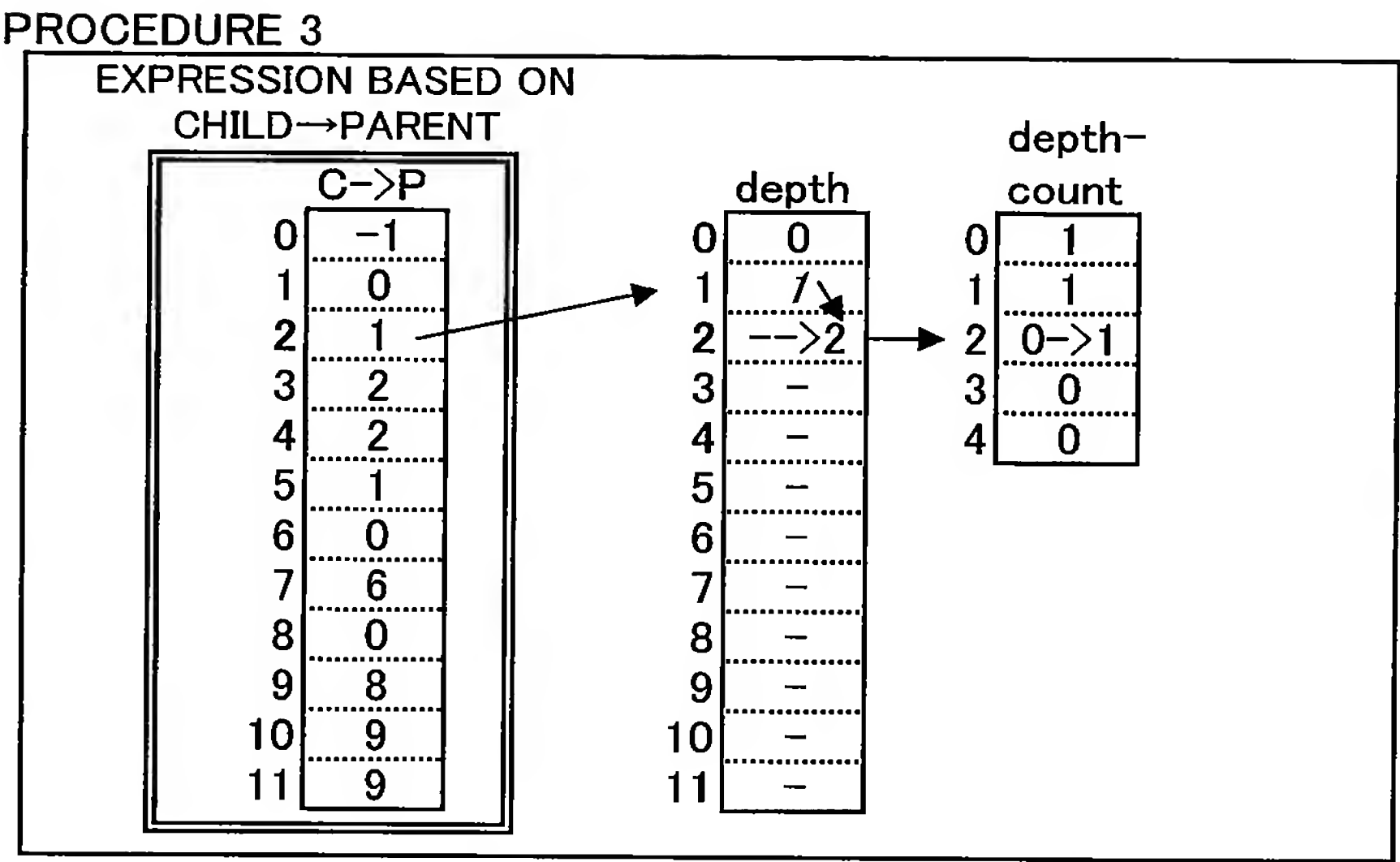


Fig.19B

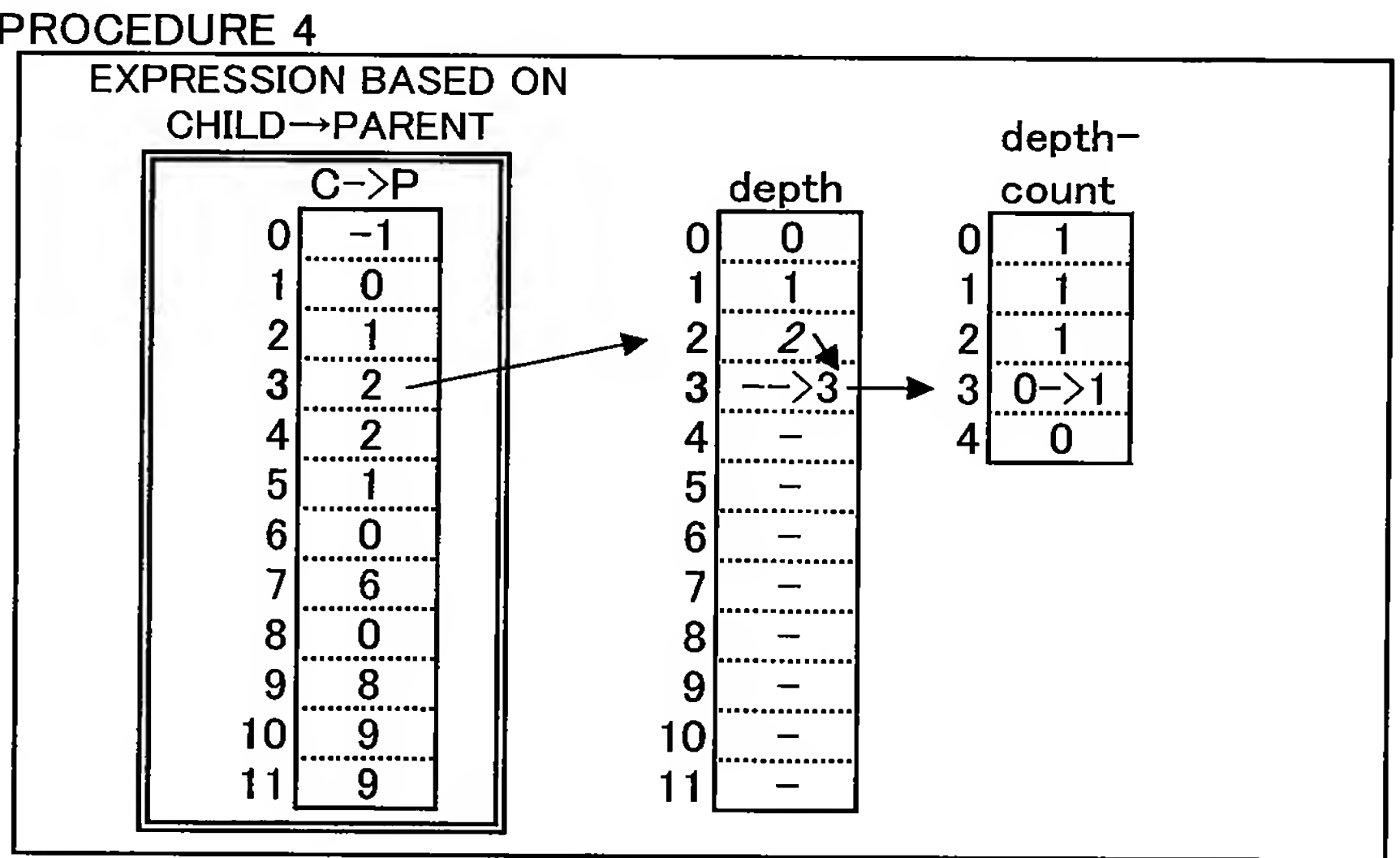


Fig.19C

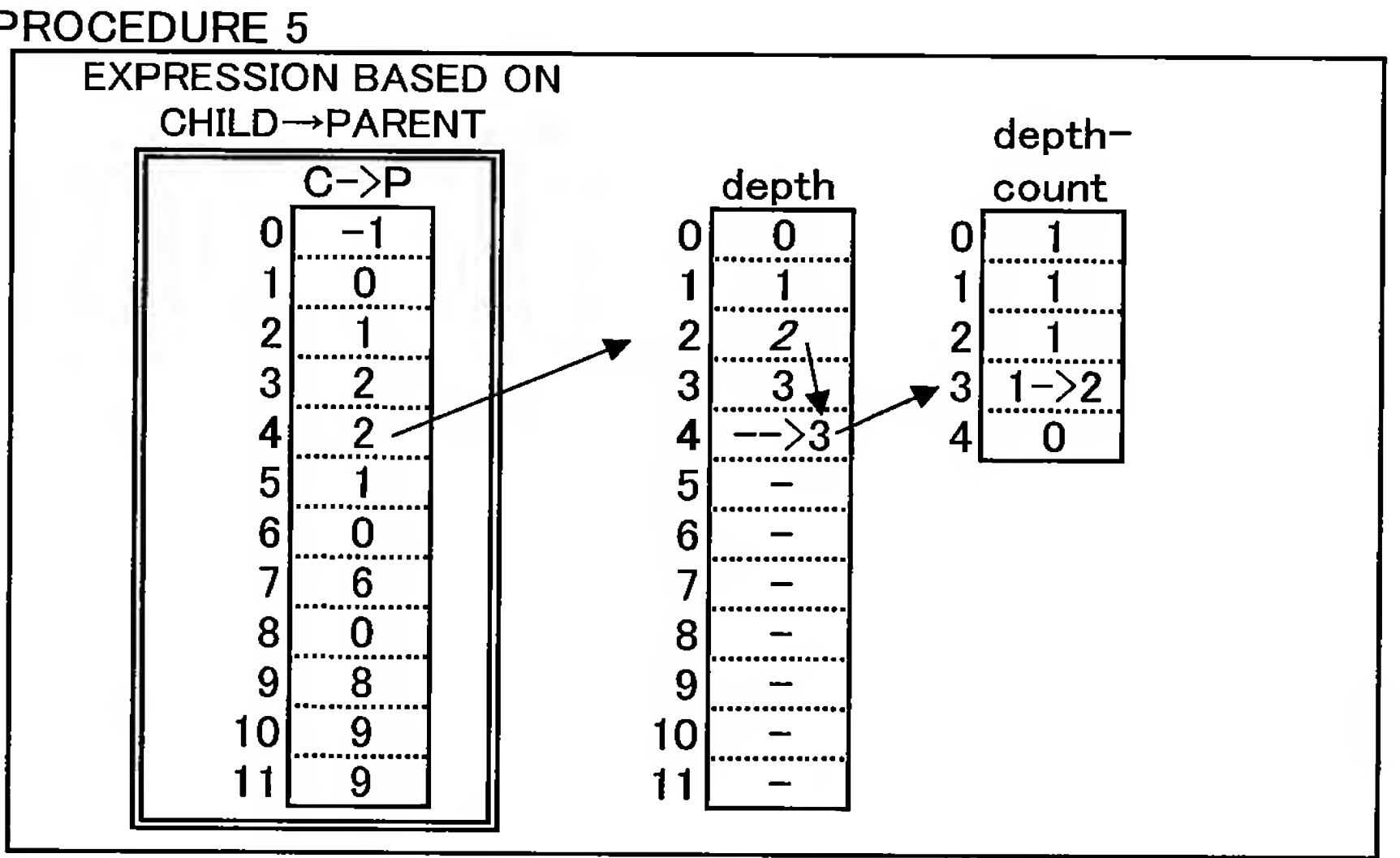


Fig.20A

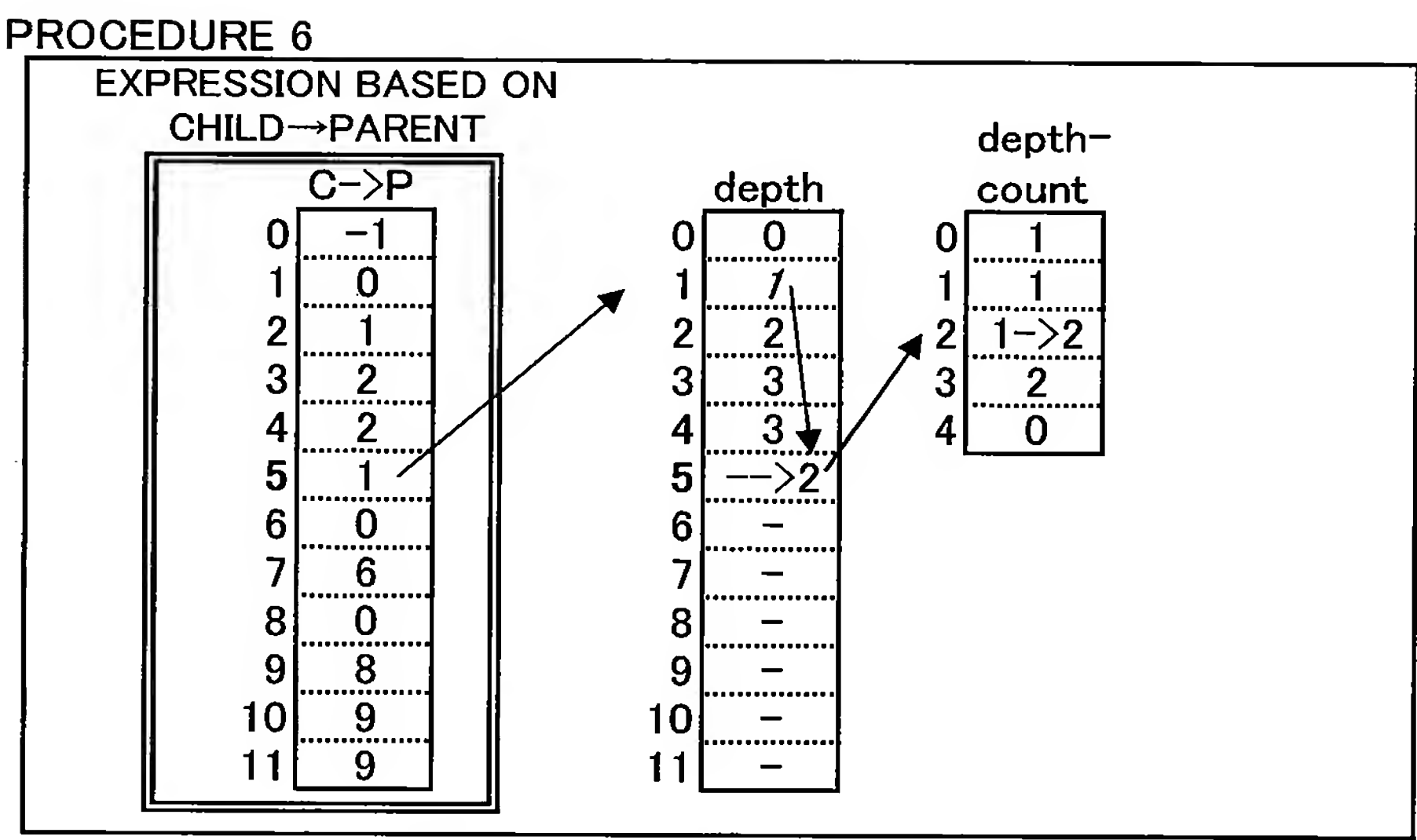


Fig.20B

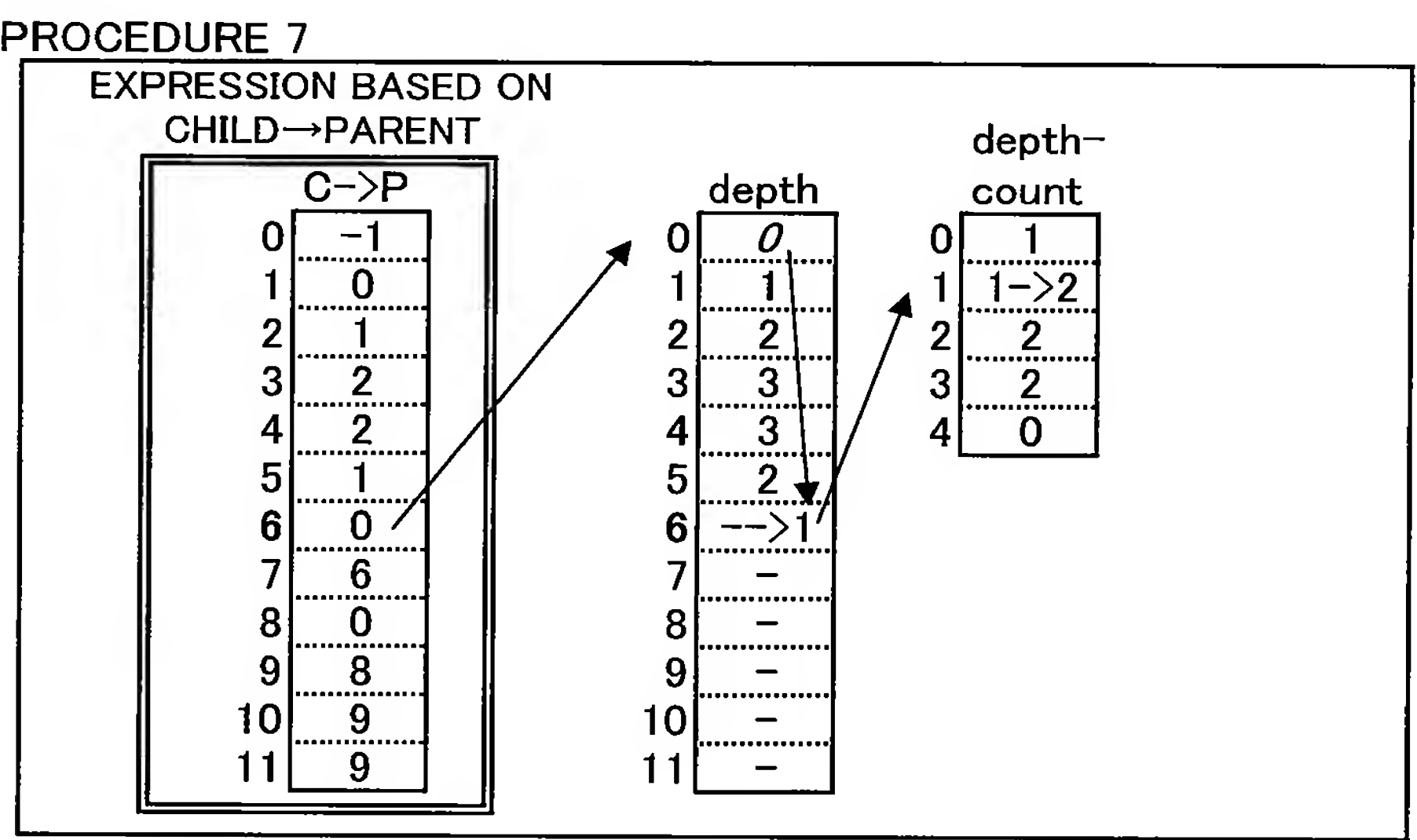


Fig.20C

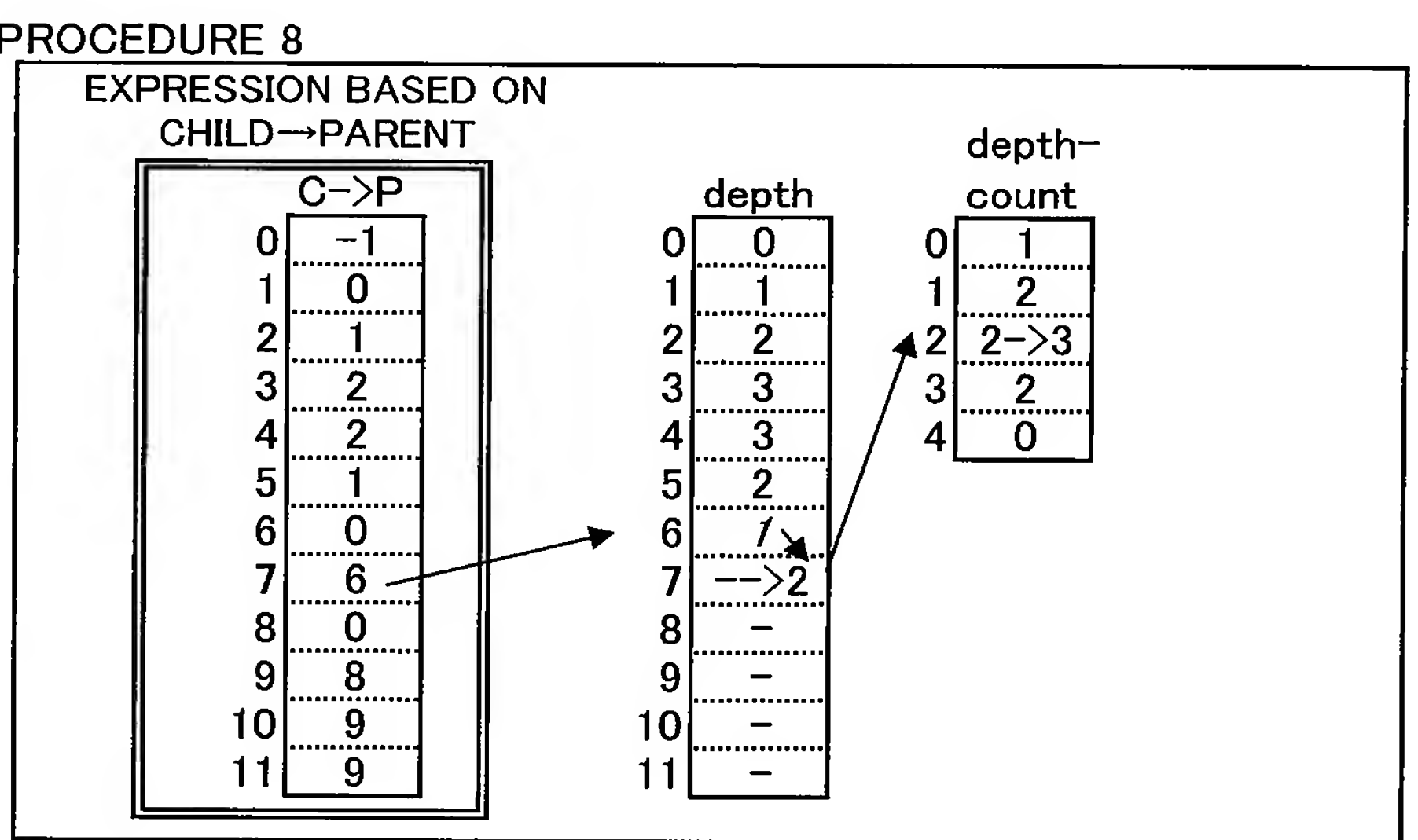


Fig.21A

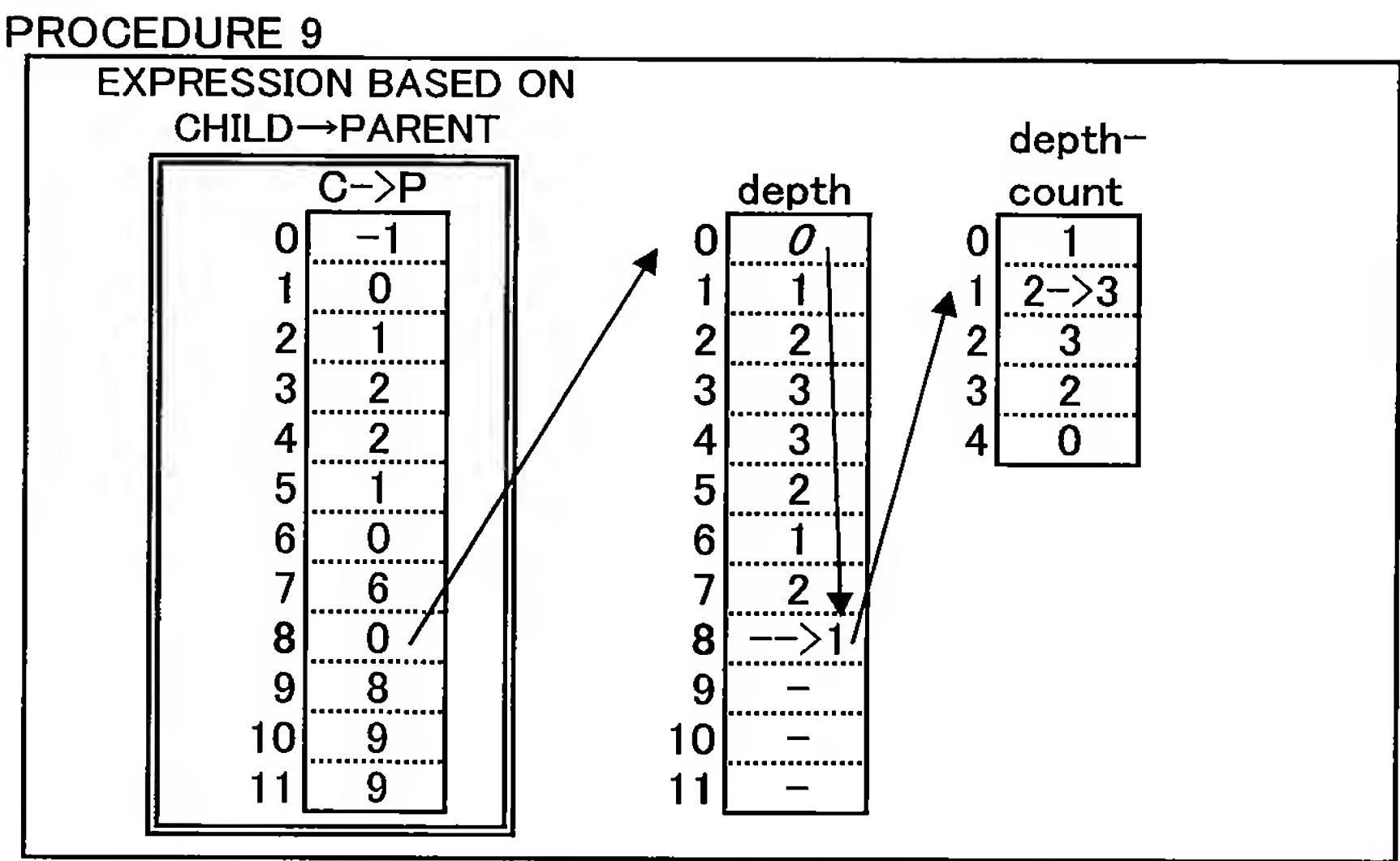


Fig.21B

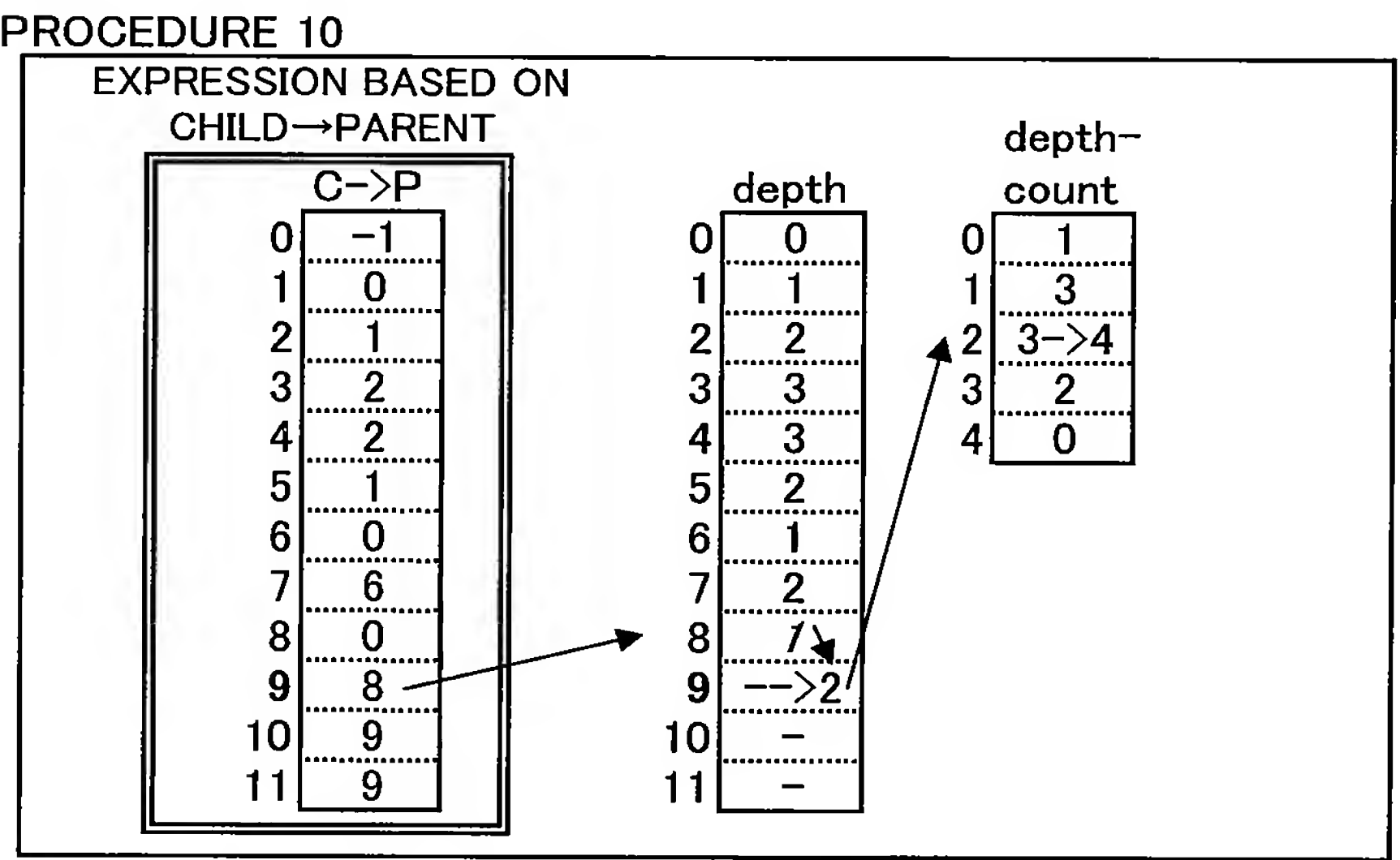


Fig.21C

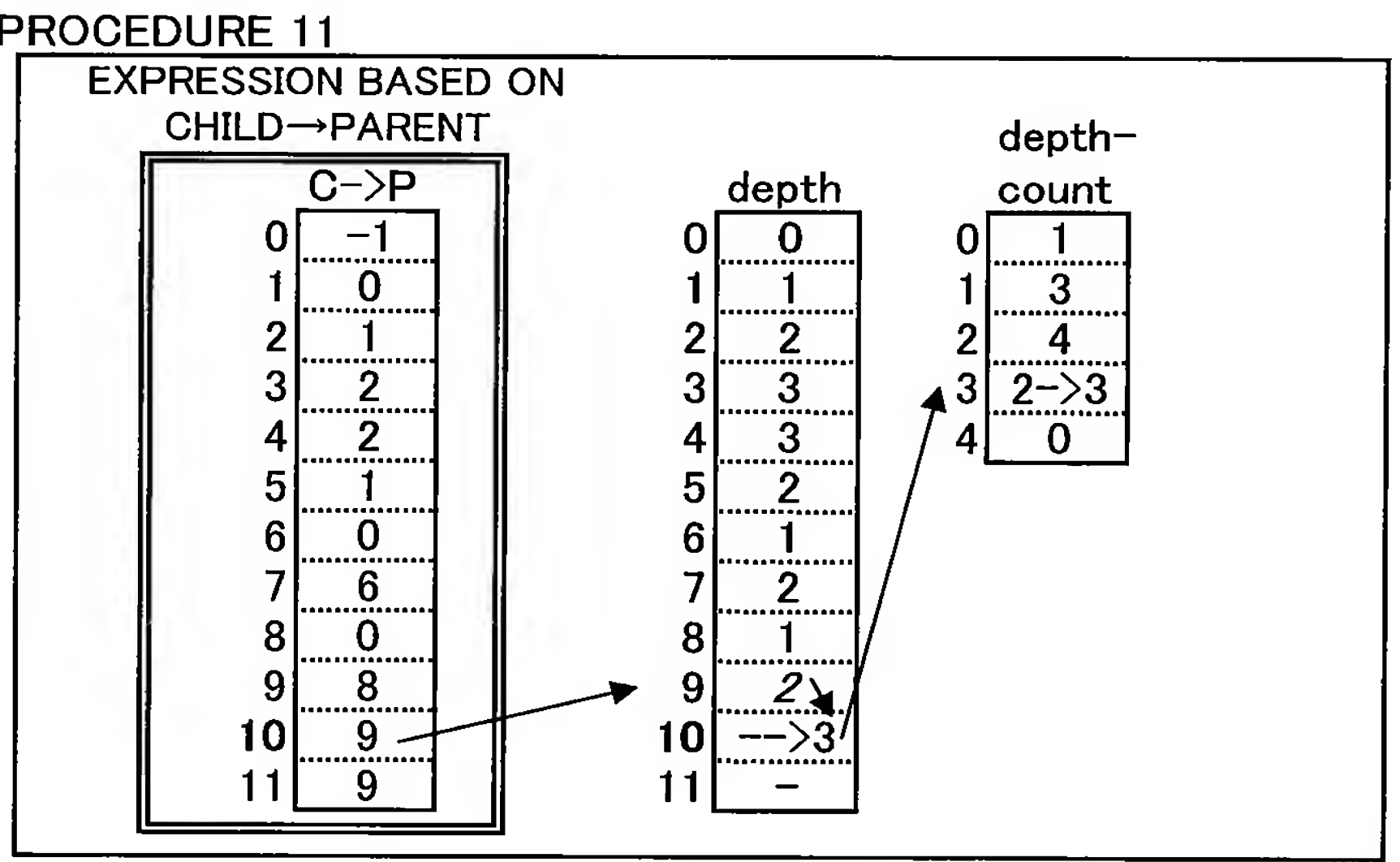


Fig.22

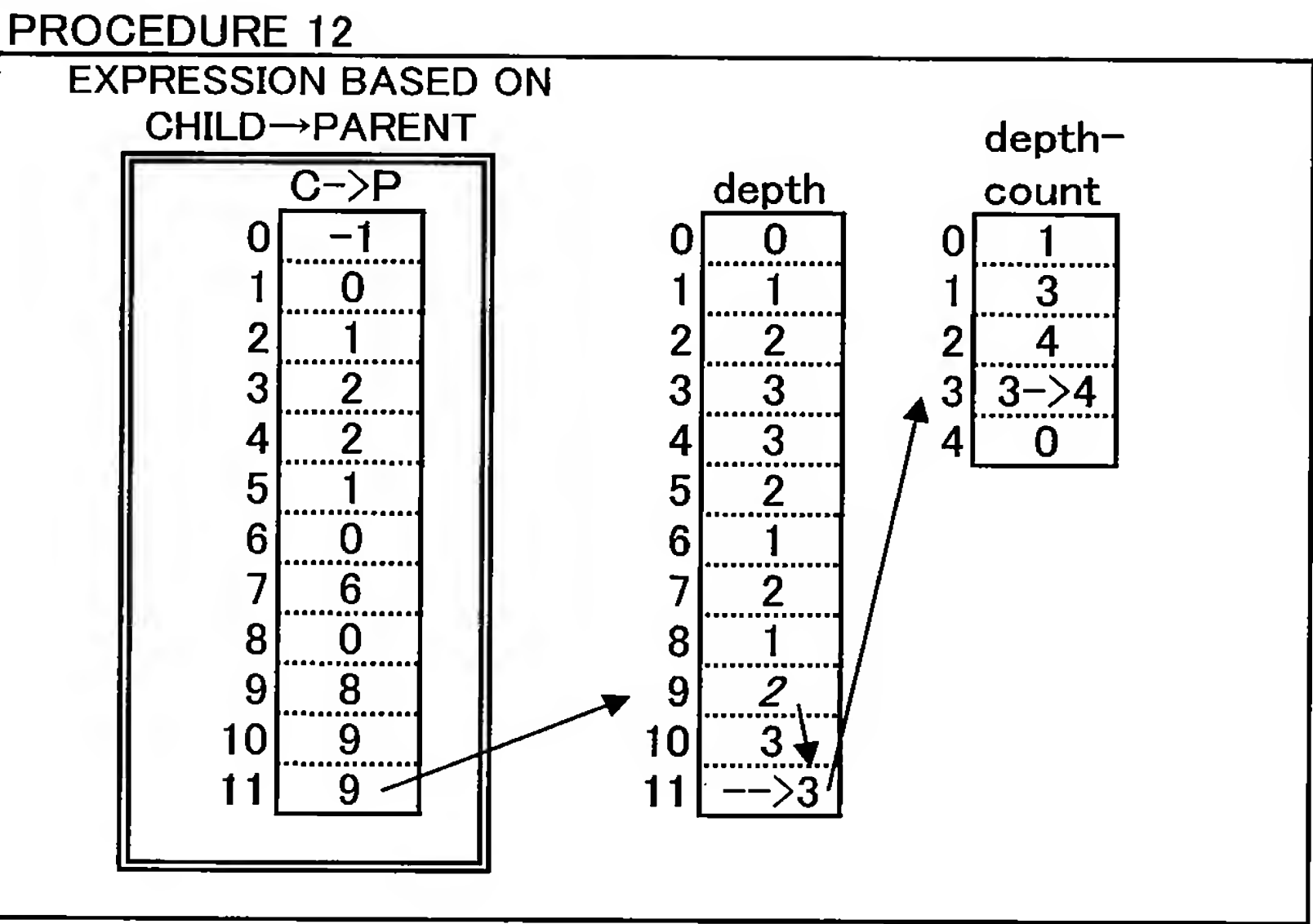


Fig.23

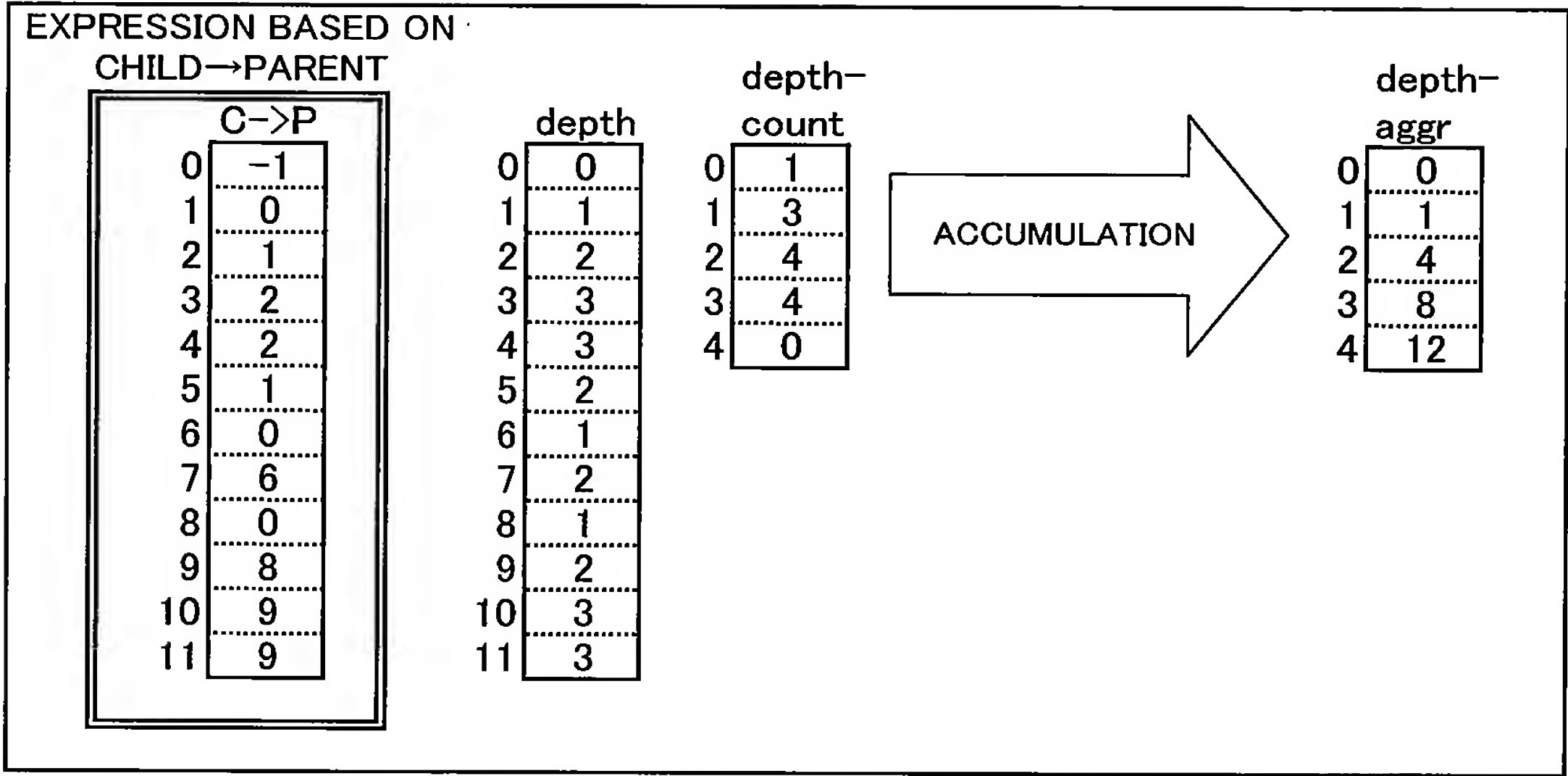


Fig.24A

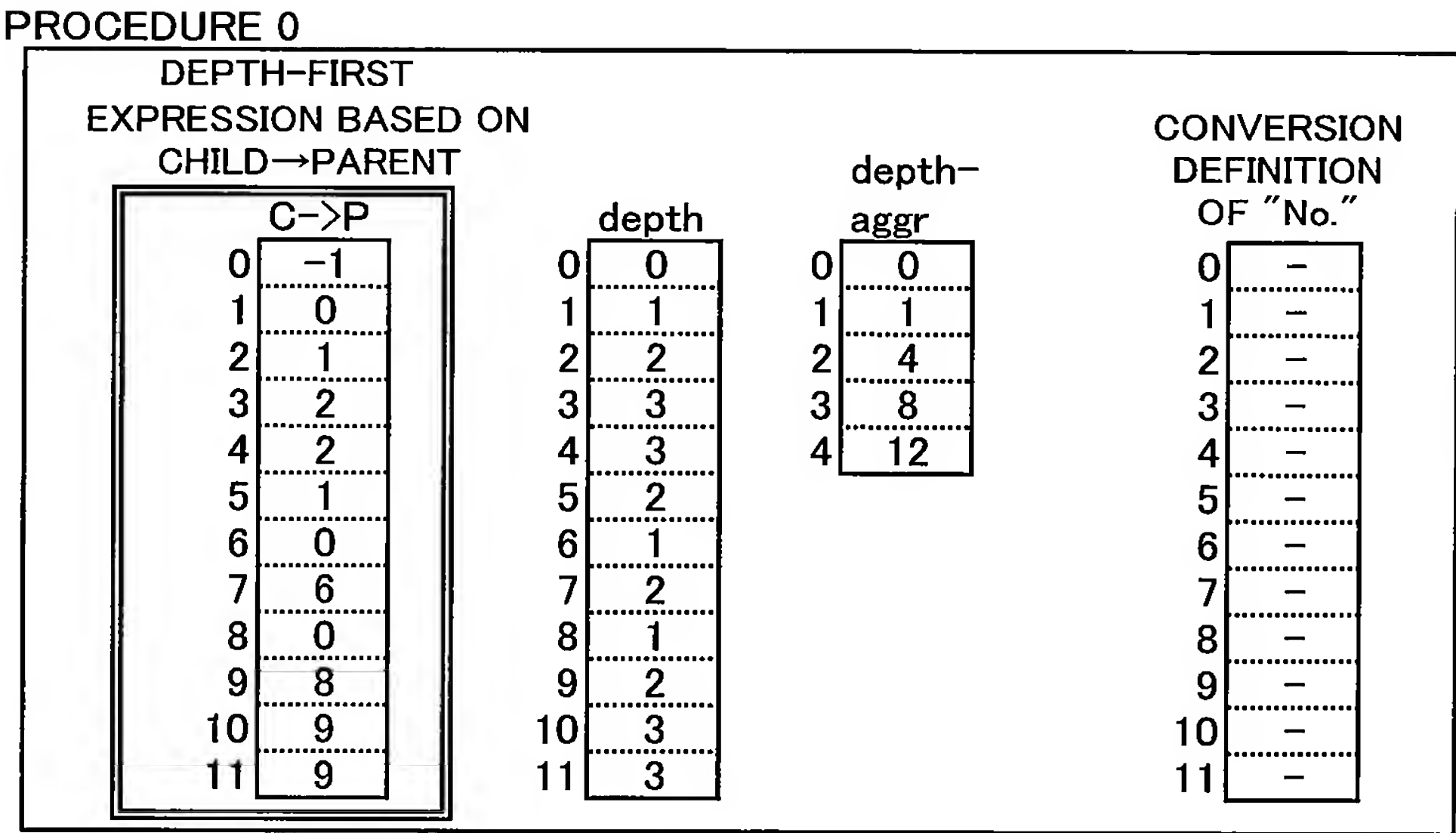


Fig.24B

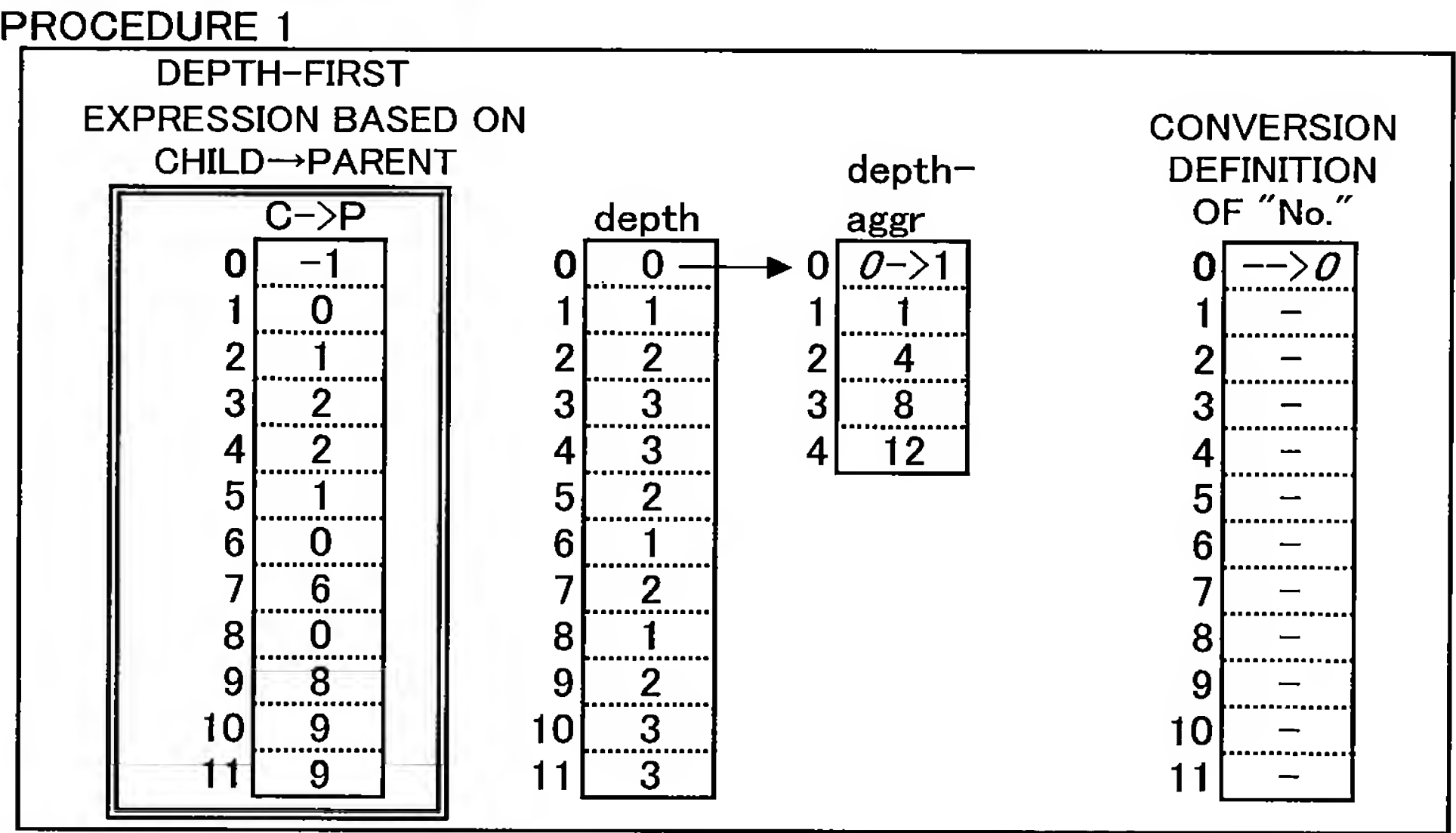


Fig.24C

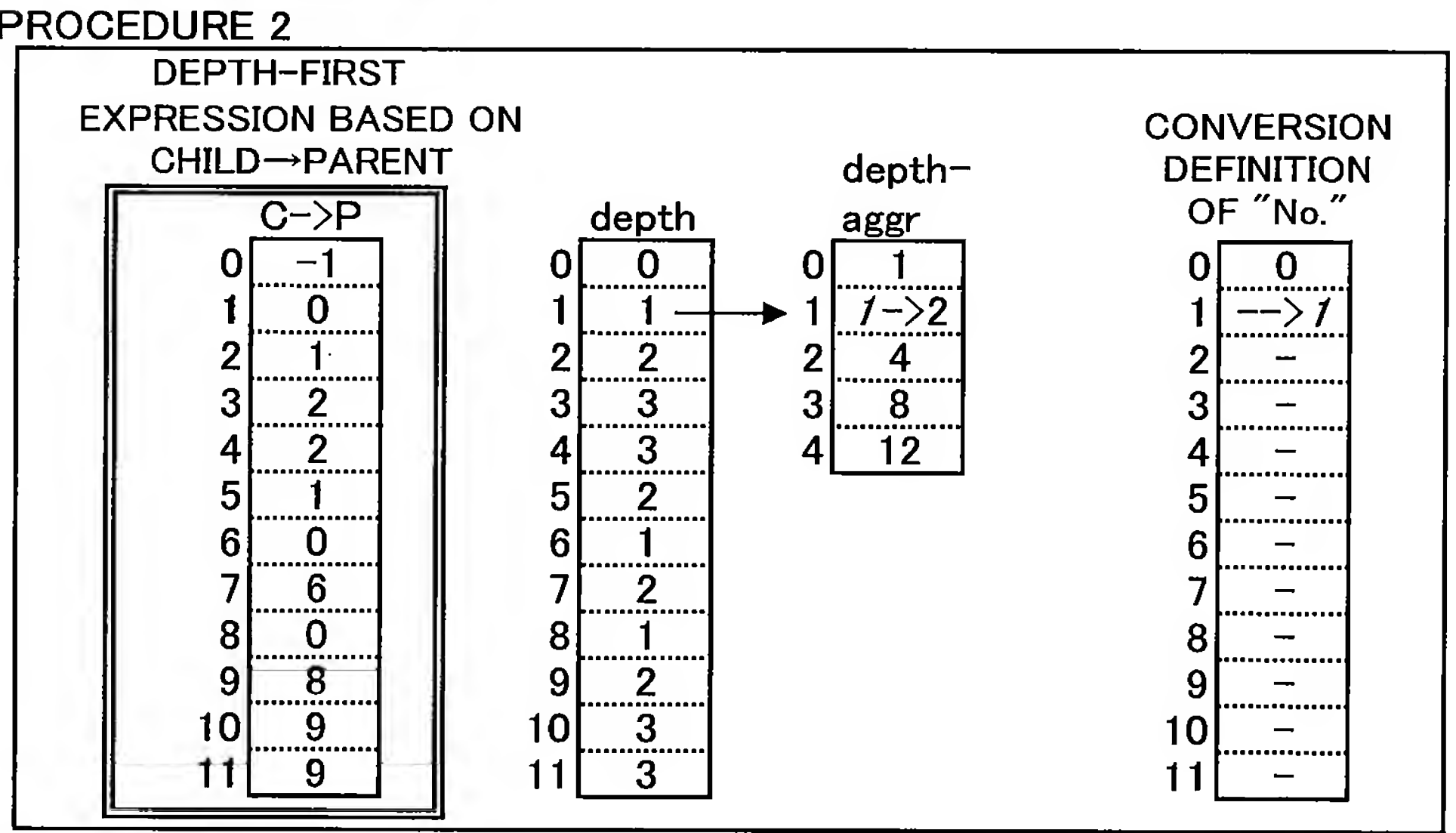


Fig.25A

PROCEDURE 3

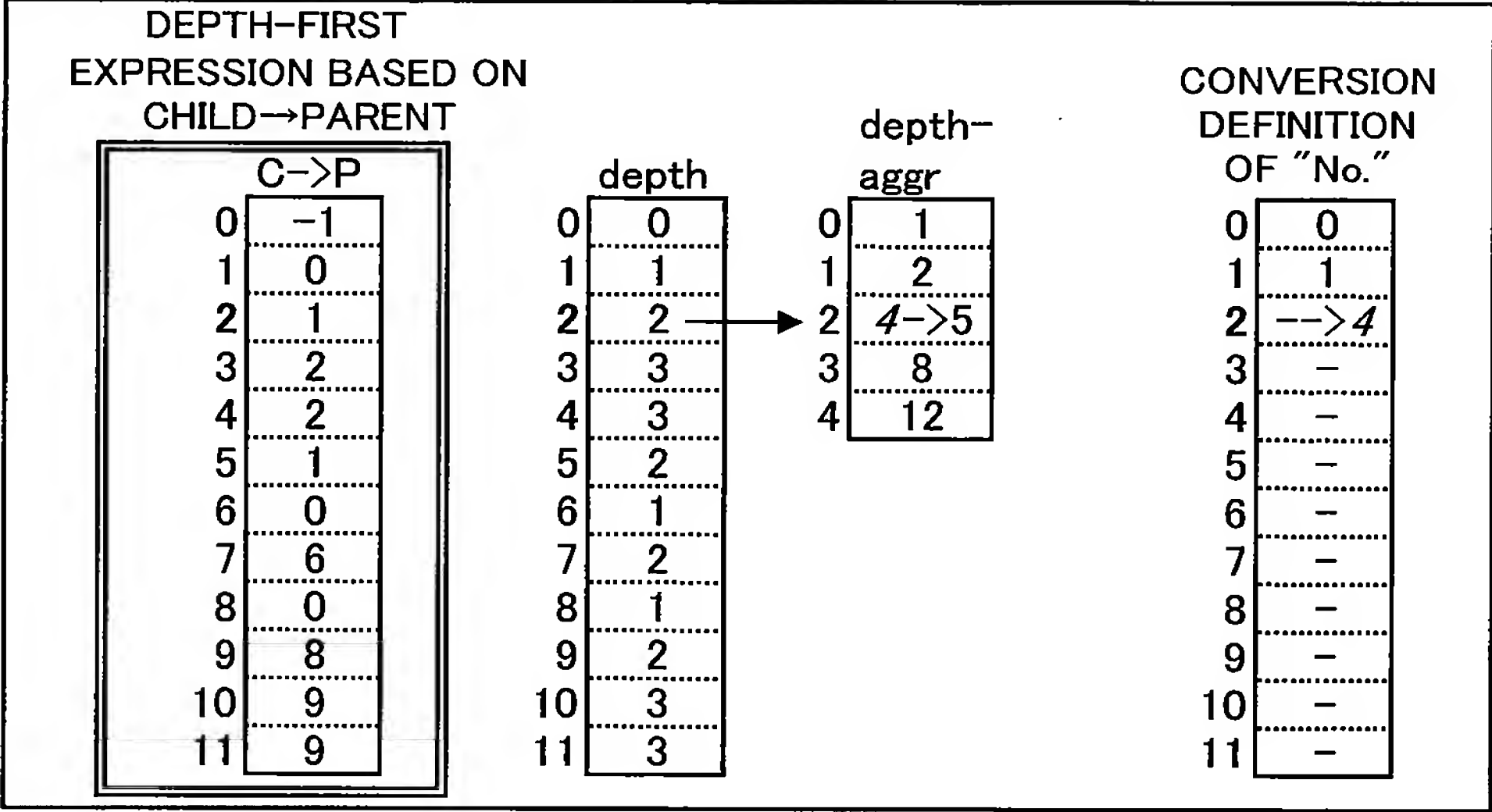


Fig.25B

PROCEDURE 4

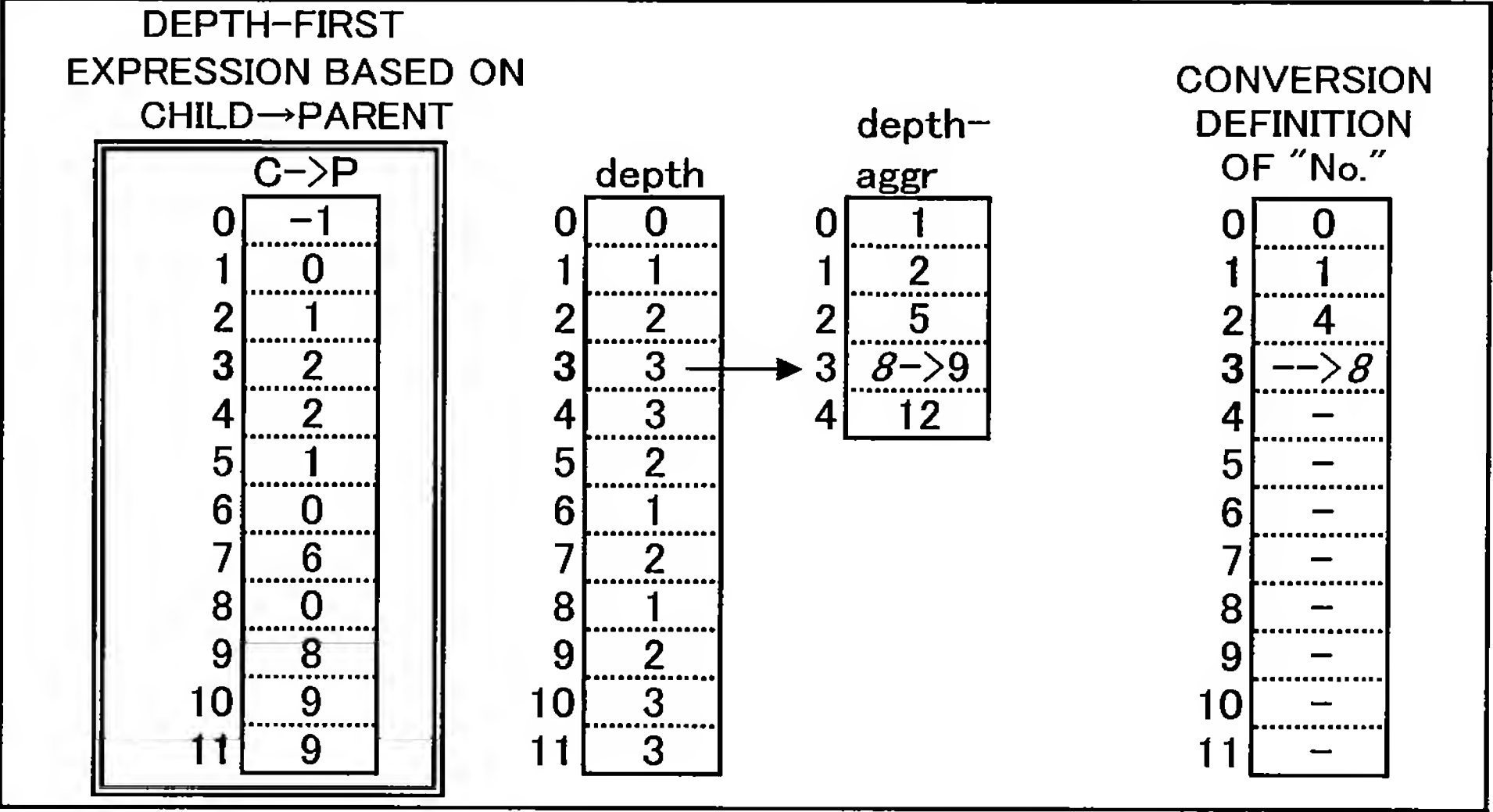


Fig.25C

PROCEDURE 5

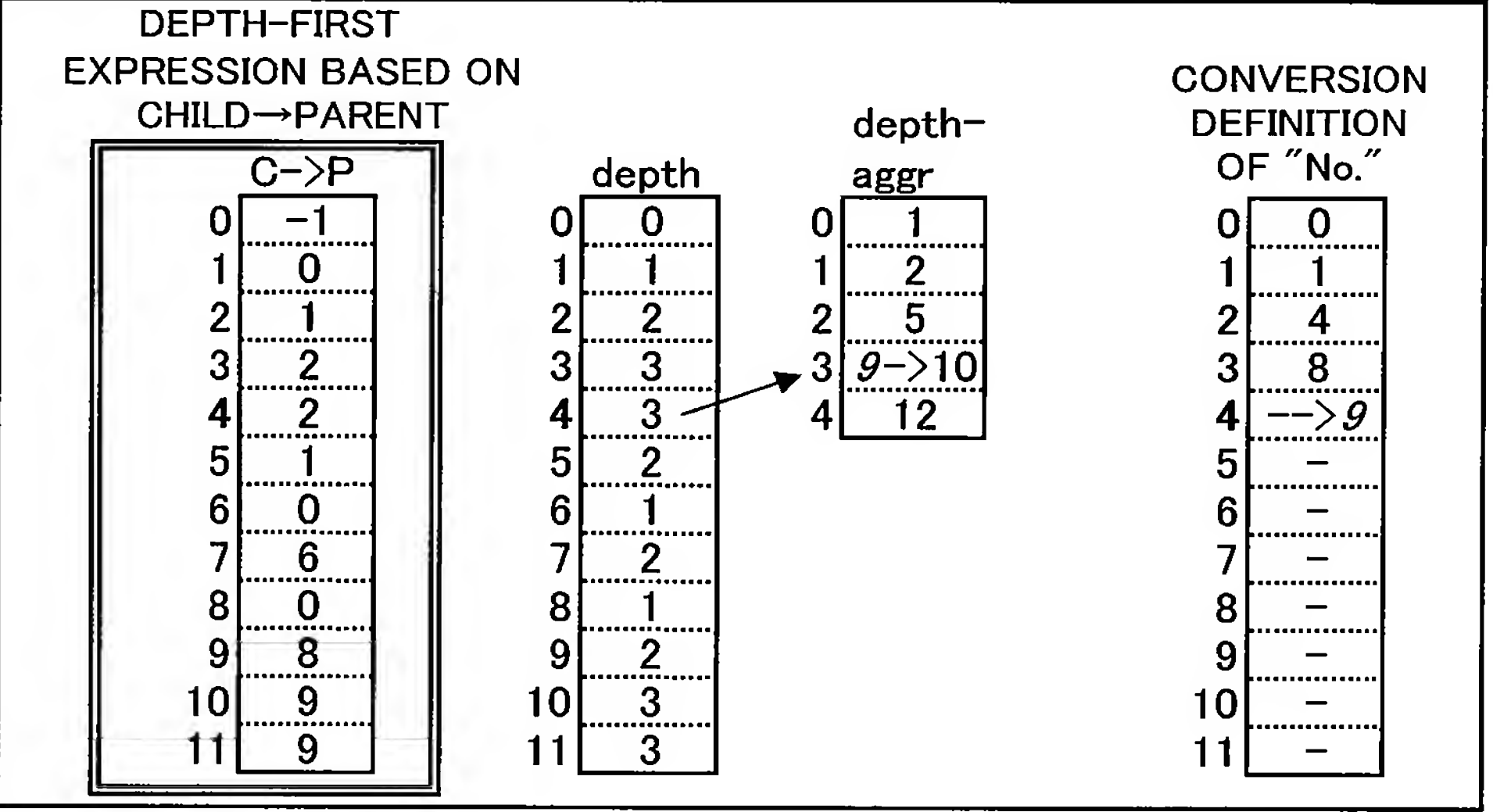


Fig.26A

PROCEDURE 6

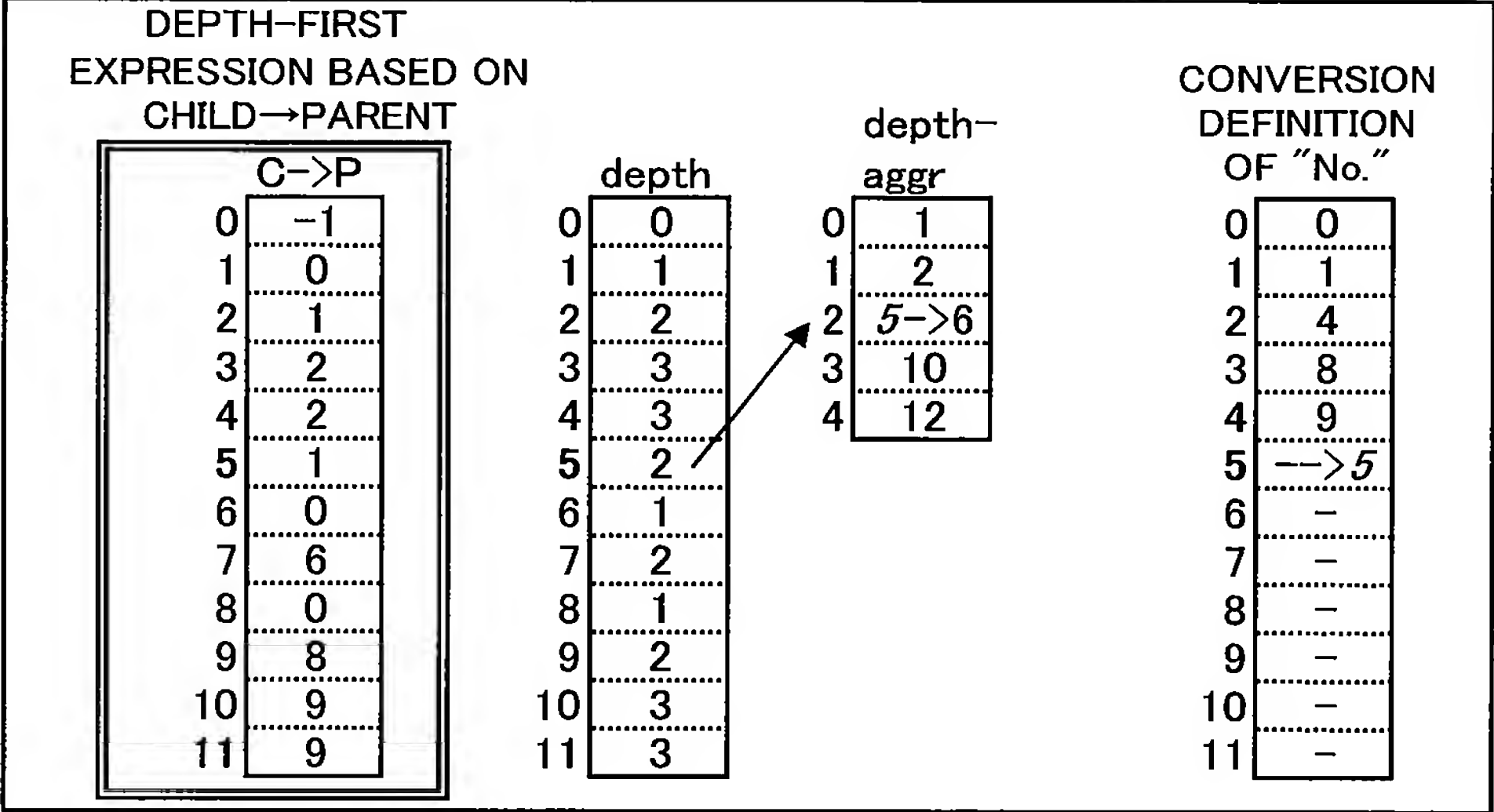


Fig.26B

PROCEDURE 7

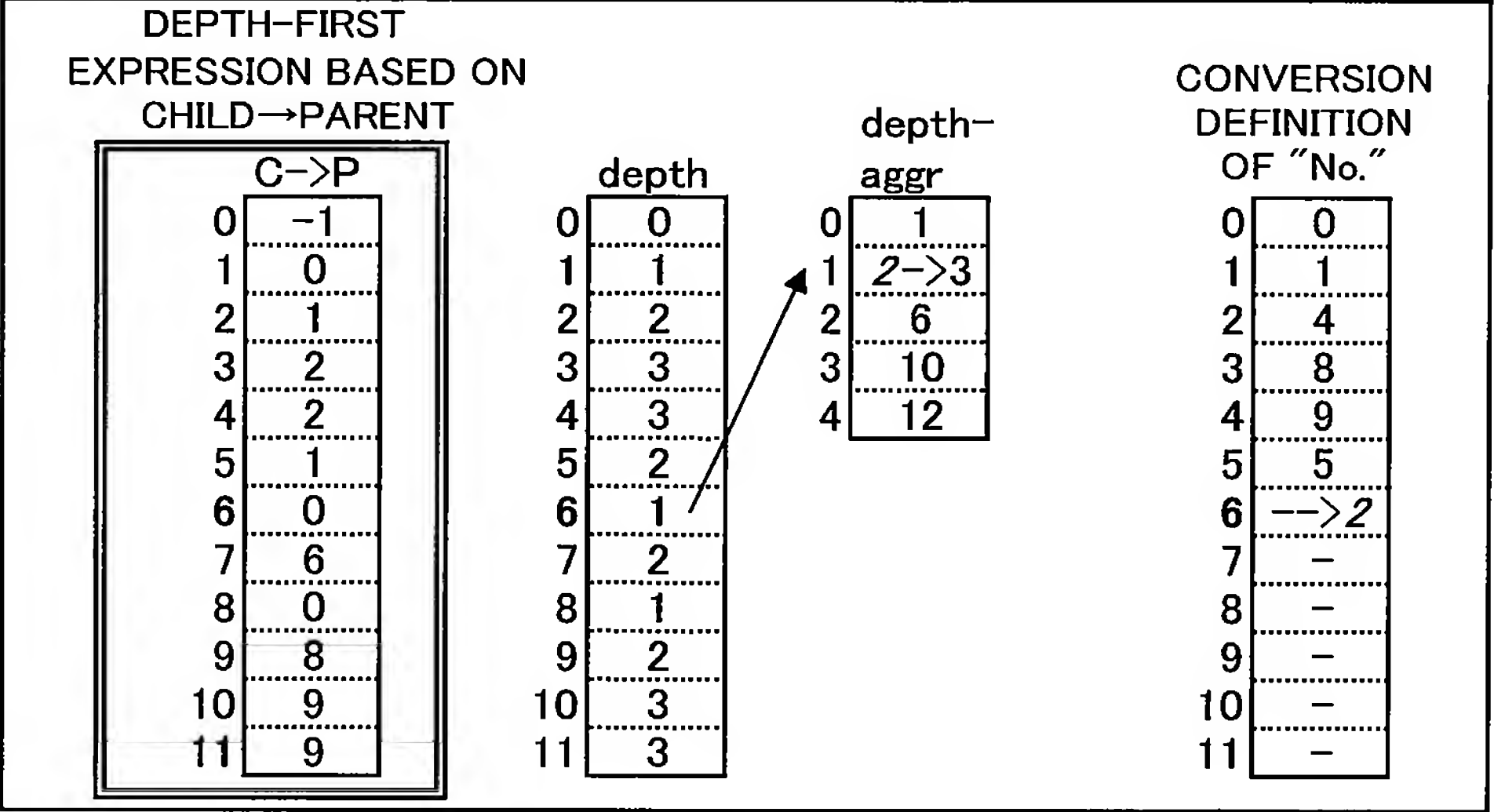


Fig.26C

PROCEDURE 8

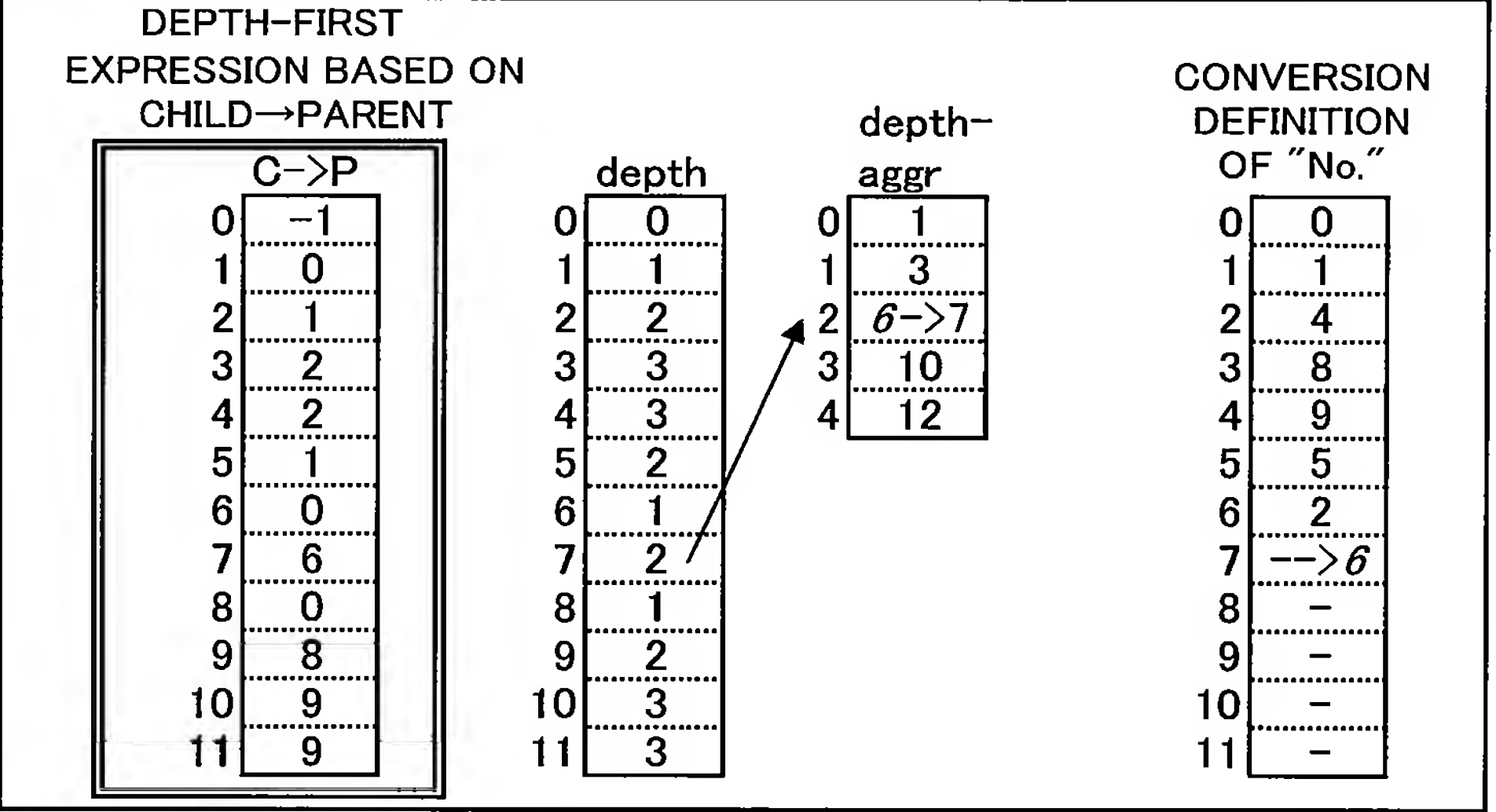


Fig.27A

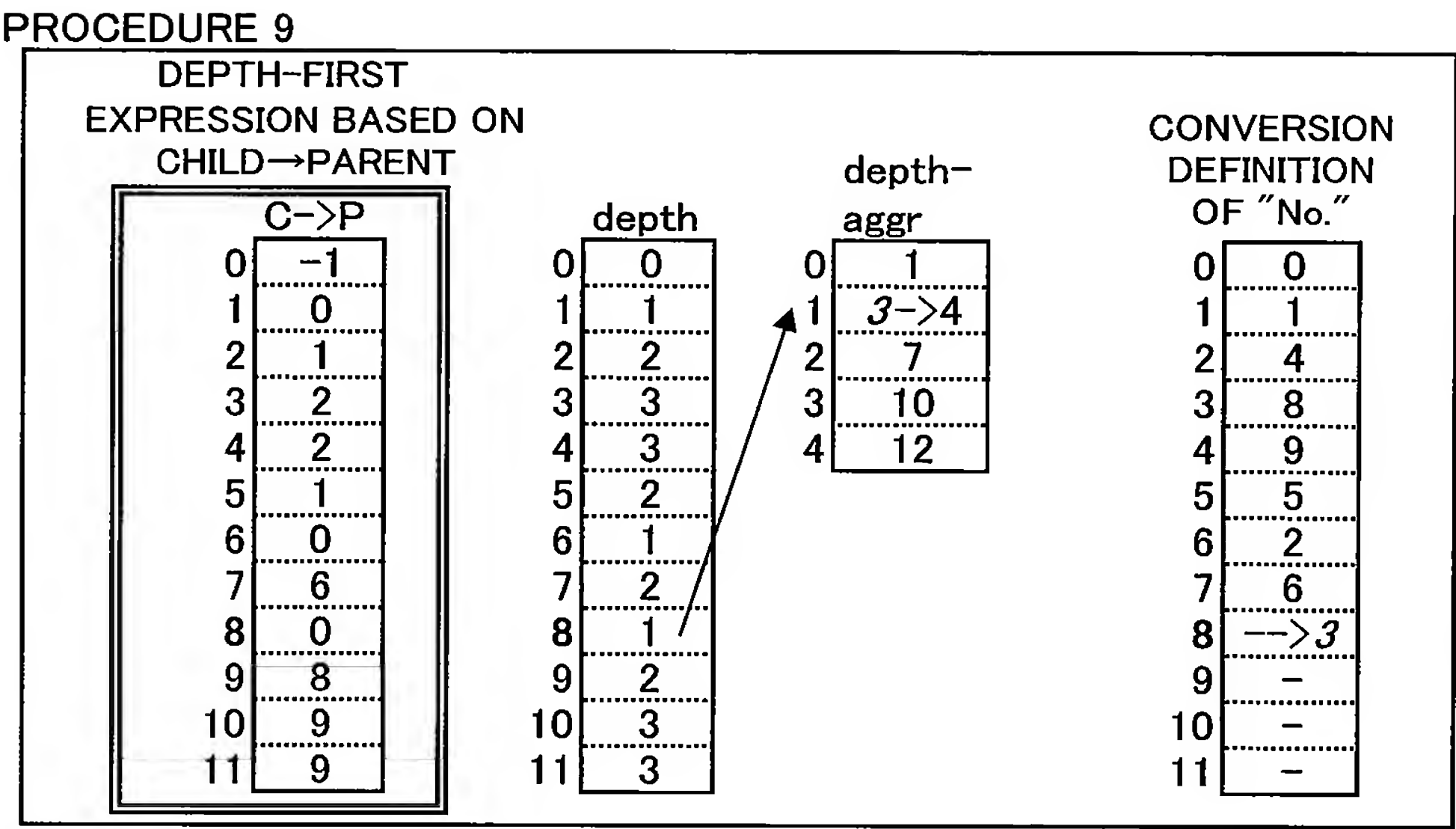


Fig.27B

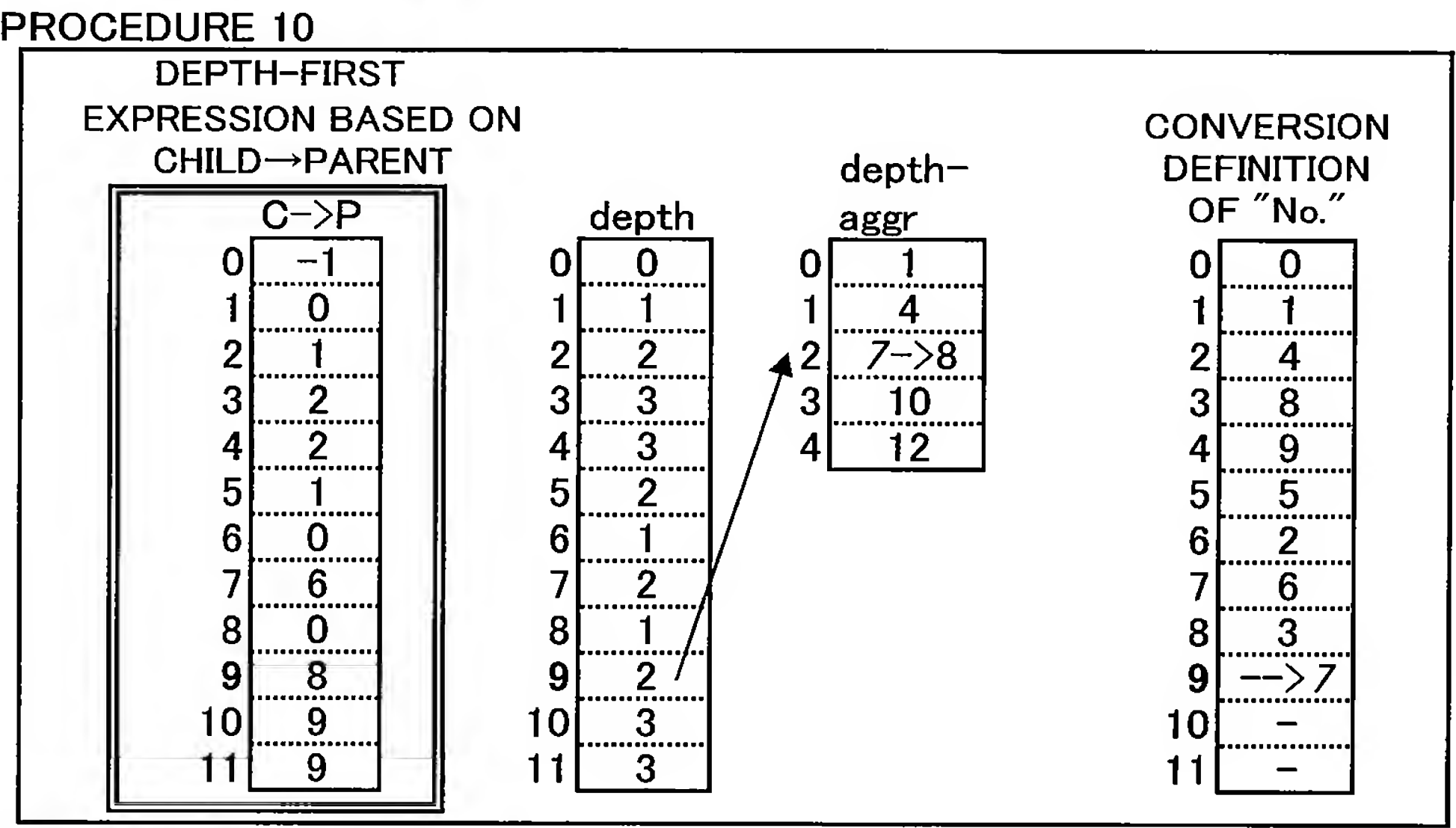


Fig.27C

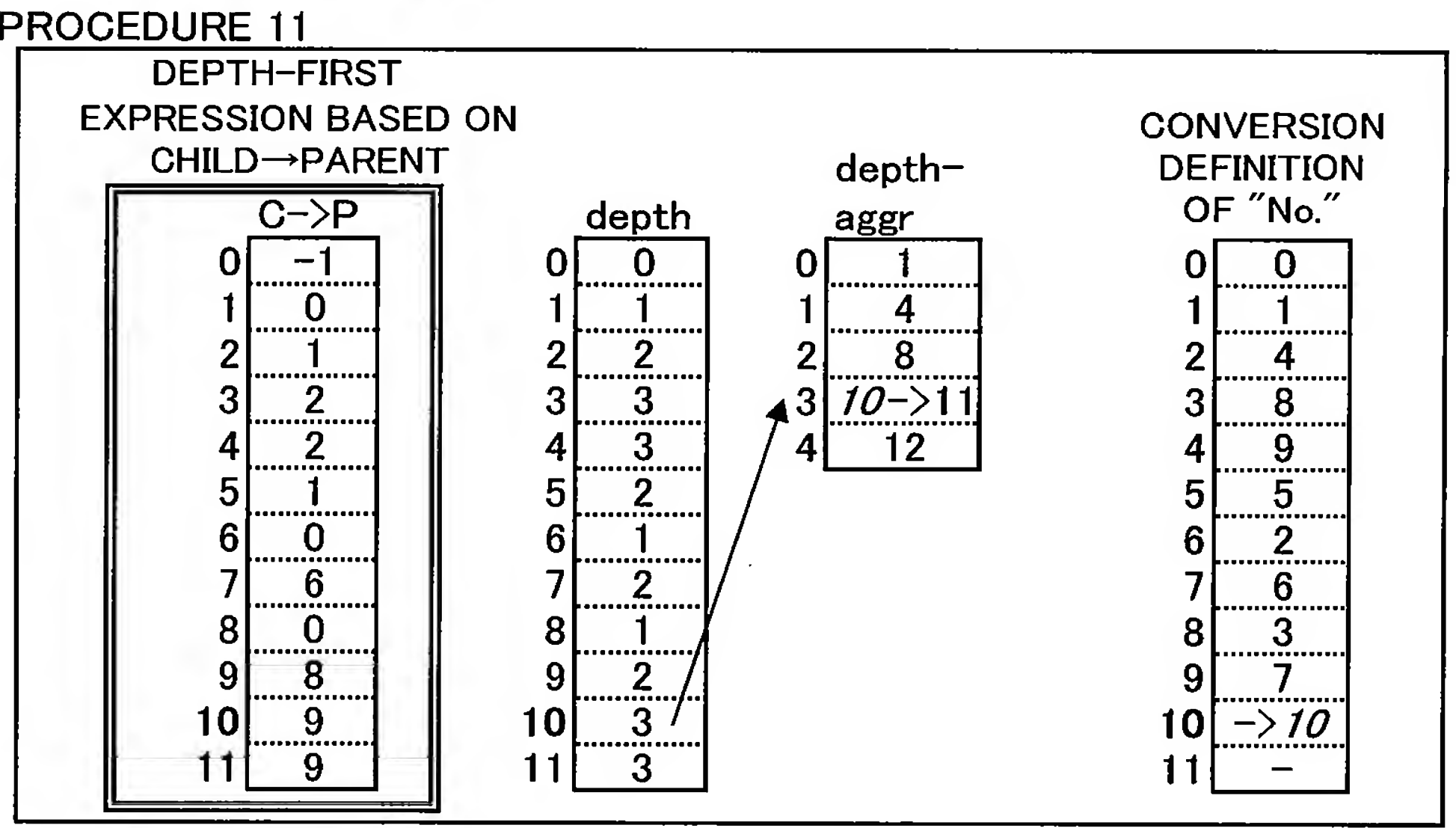


Fig.28

PROCEDURE 12

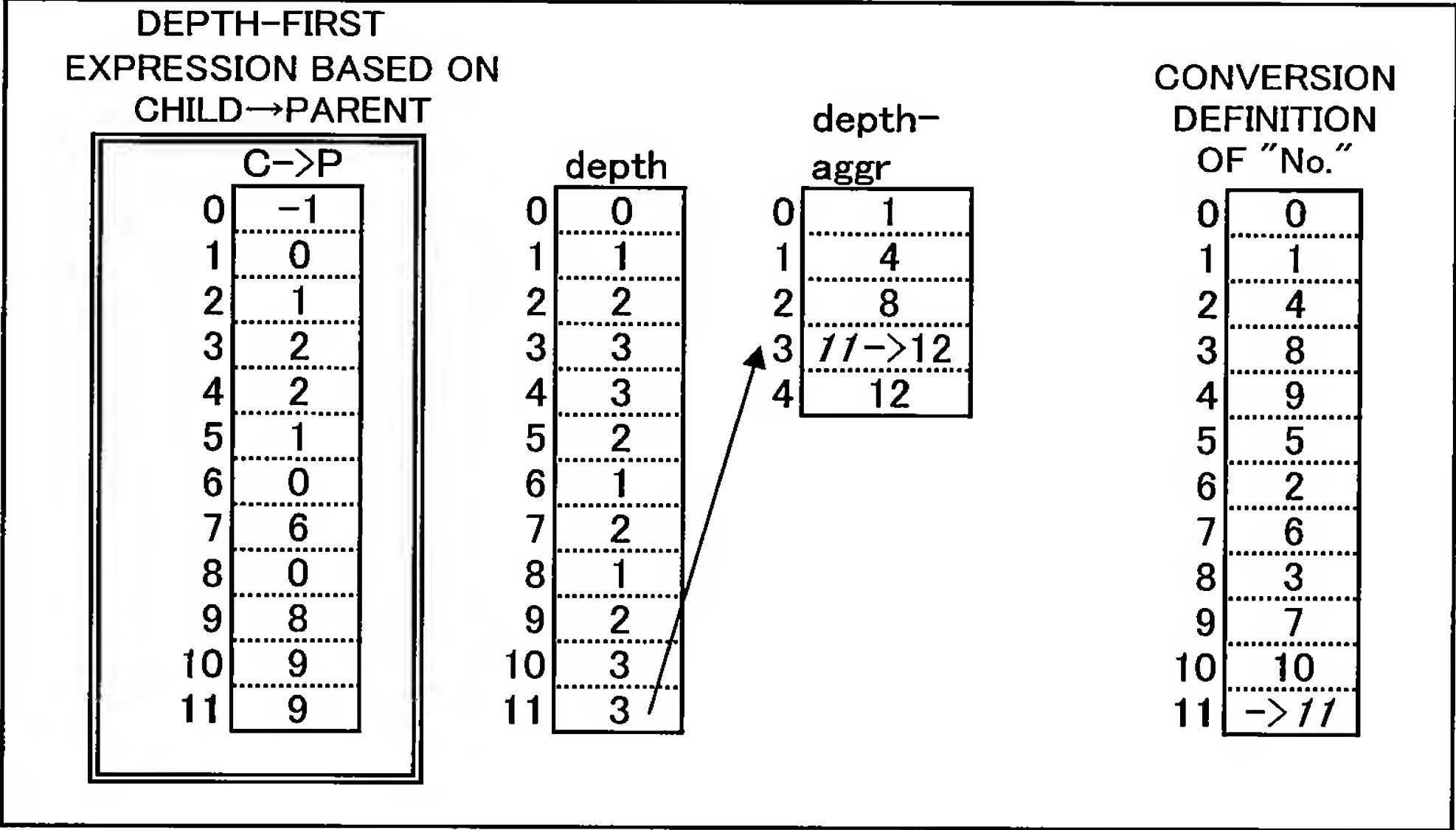


Fig.29

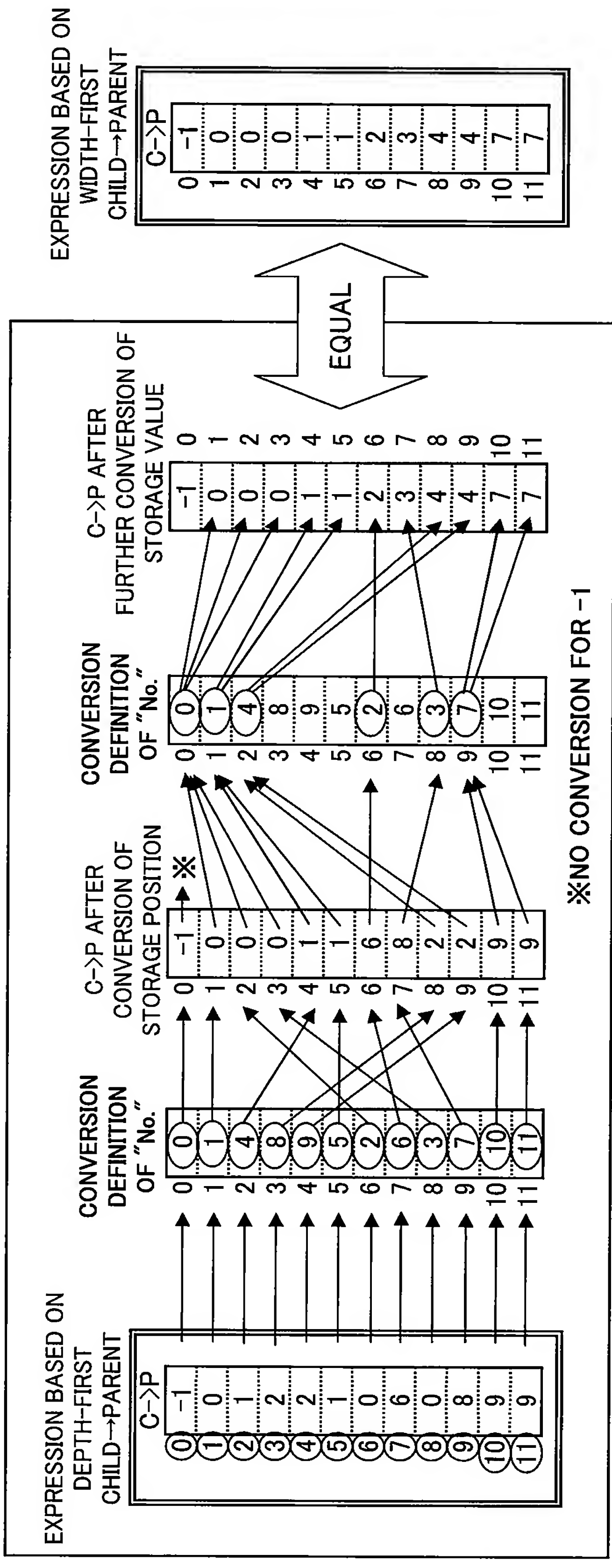


Fig.31

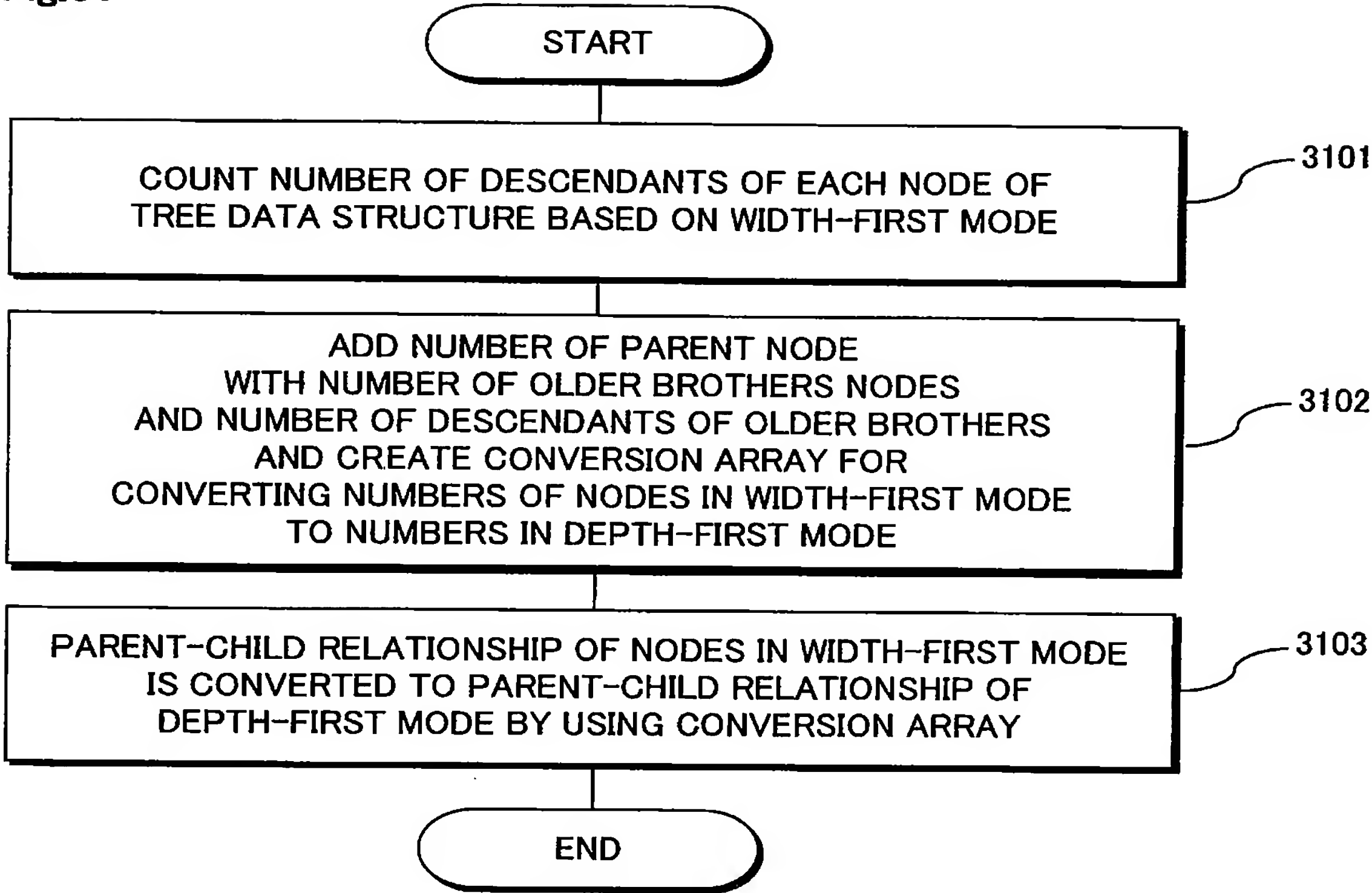


Fig.32

EXPRESSION BASED ON WIDTH-FIRST CHILD→PARENT		NODE NUMBER ARRAY	
C→P		ARRAY	
0	-1	0	1
1	0	1	1
2	0	2	1
3	0	3	1
4	1	4	1
5	1	5	1
6	2	6	1
7	3	7	1
8	4	8	1
9	4	9	1
10	7	10	1
11	7	11	1

Fig. 33

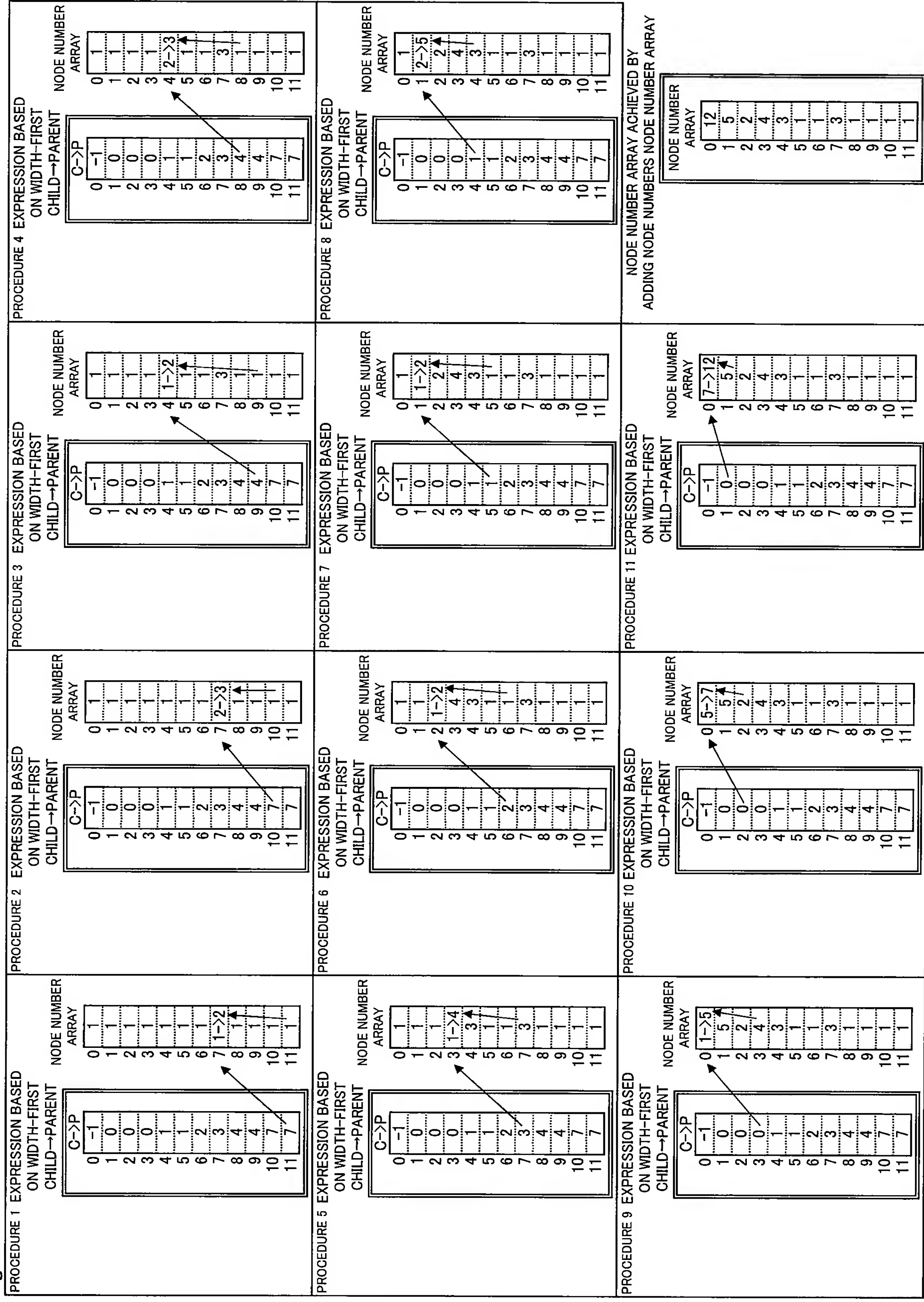


Fig.34

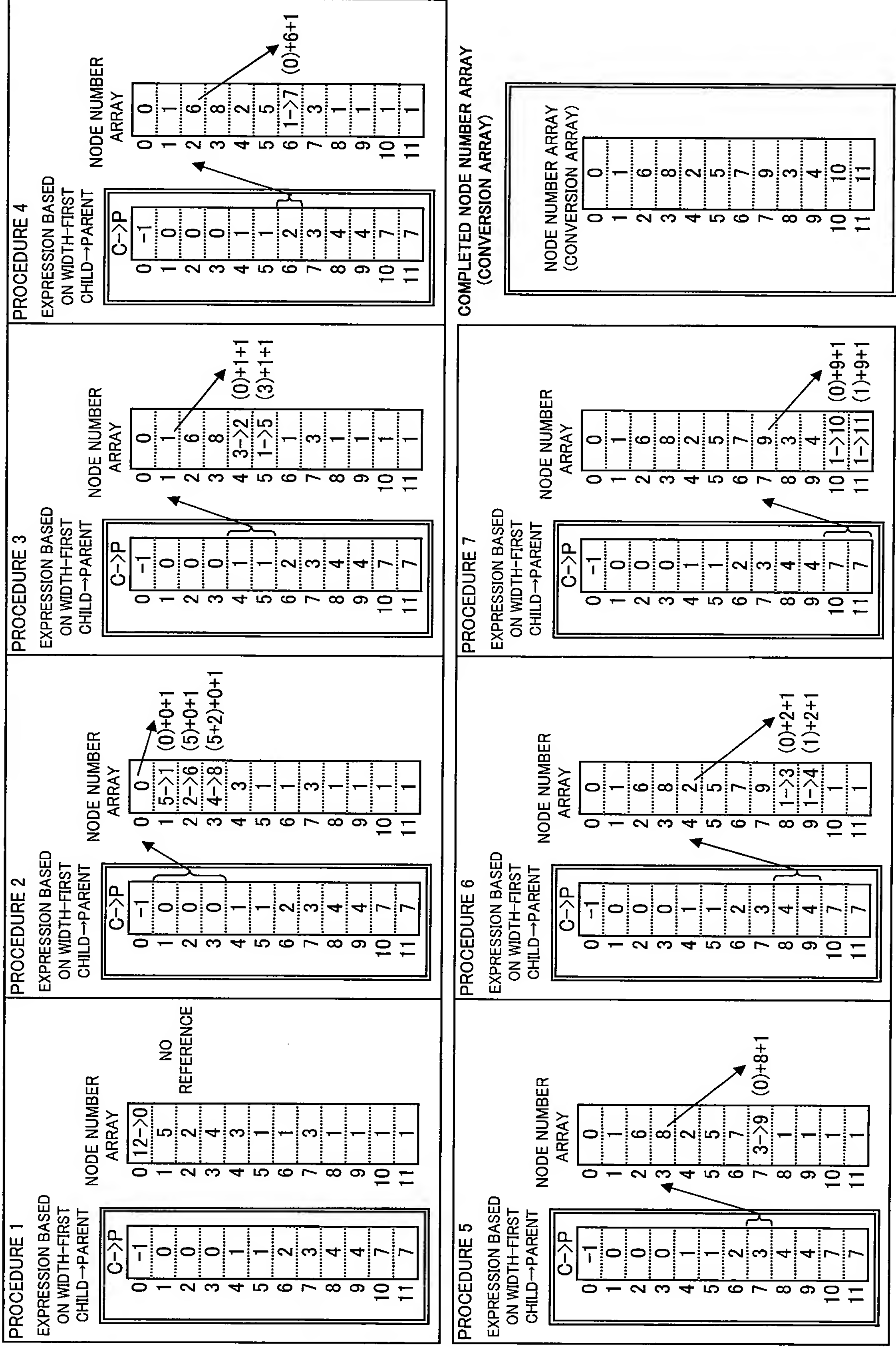


Fig.35

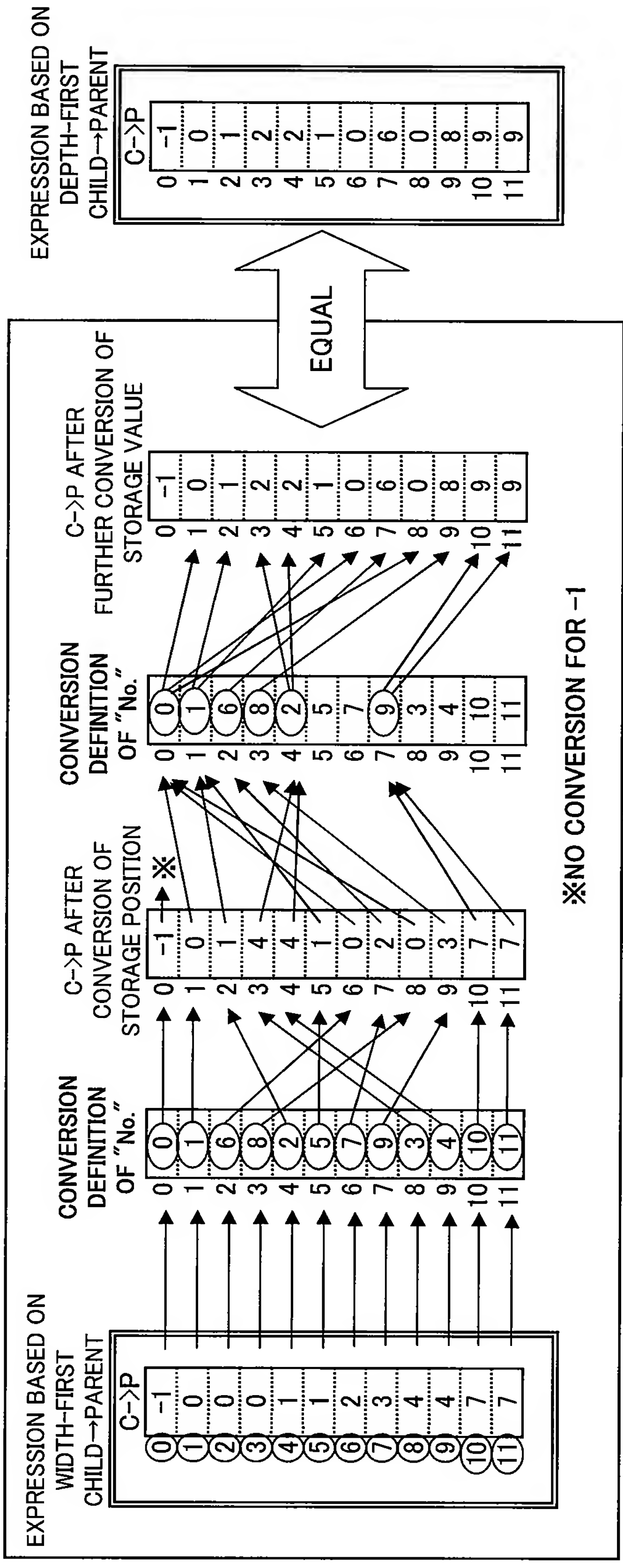


Fig.36

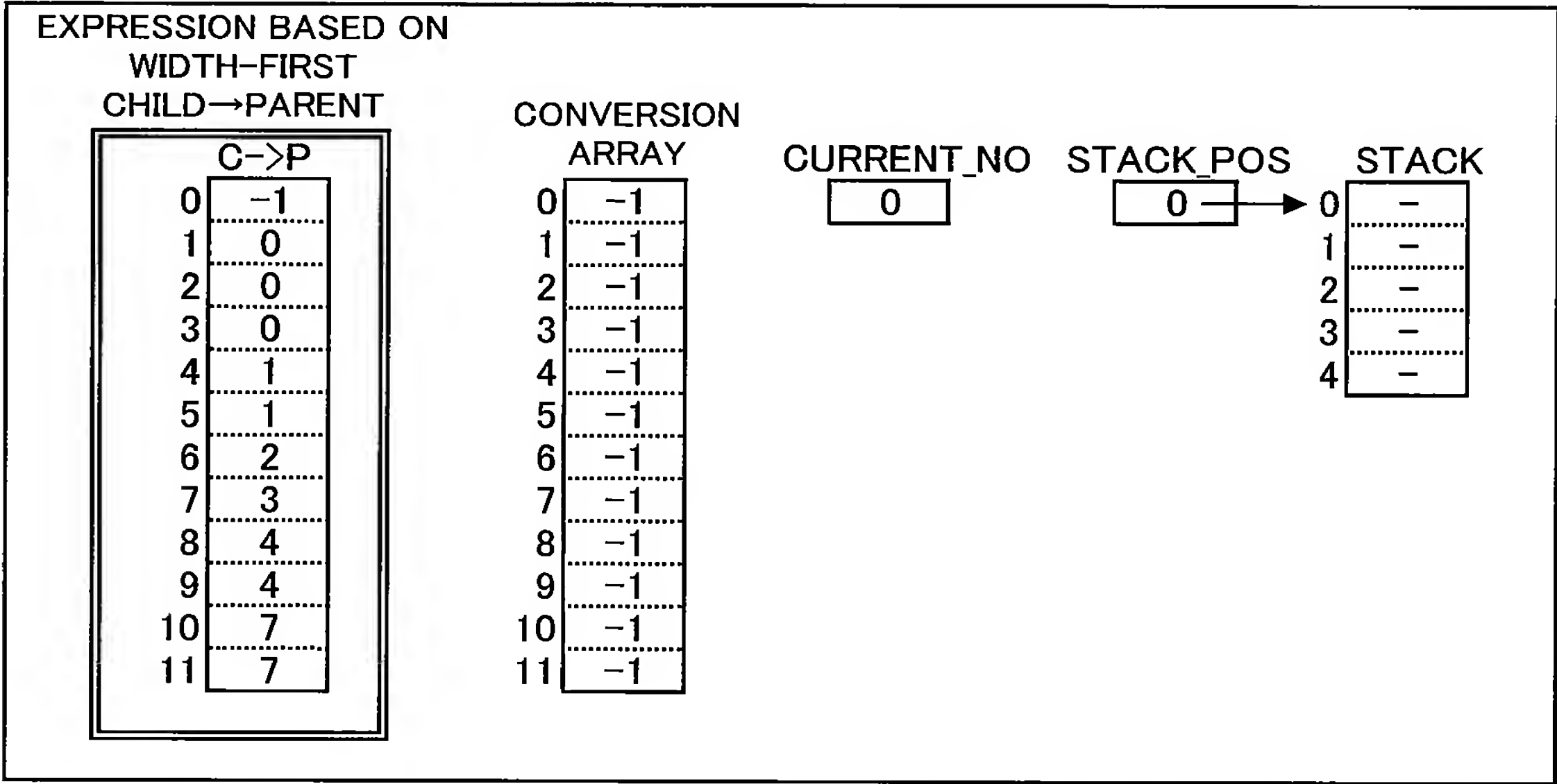


Fig.37A

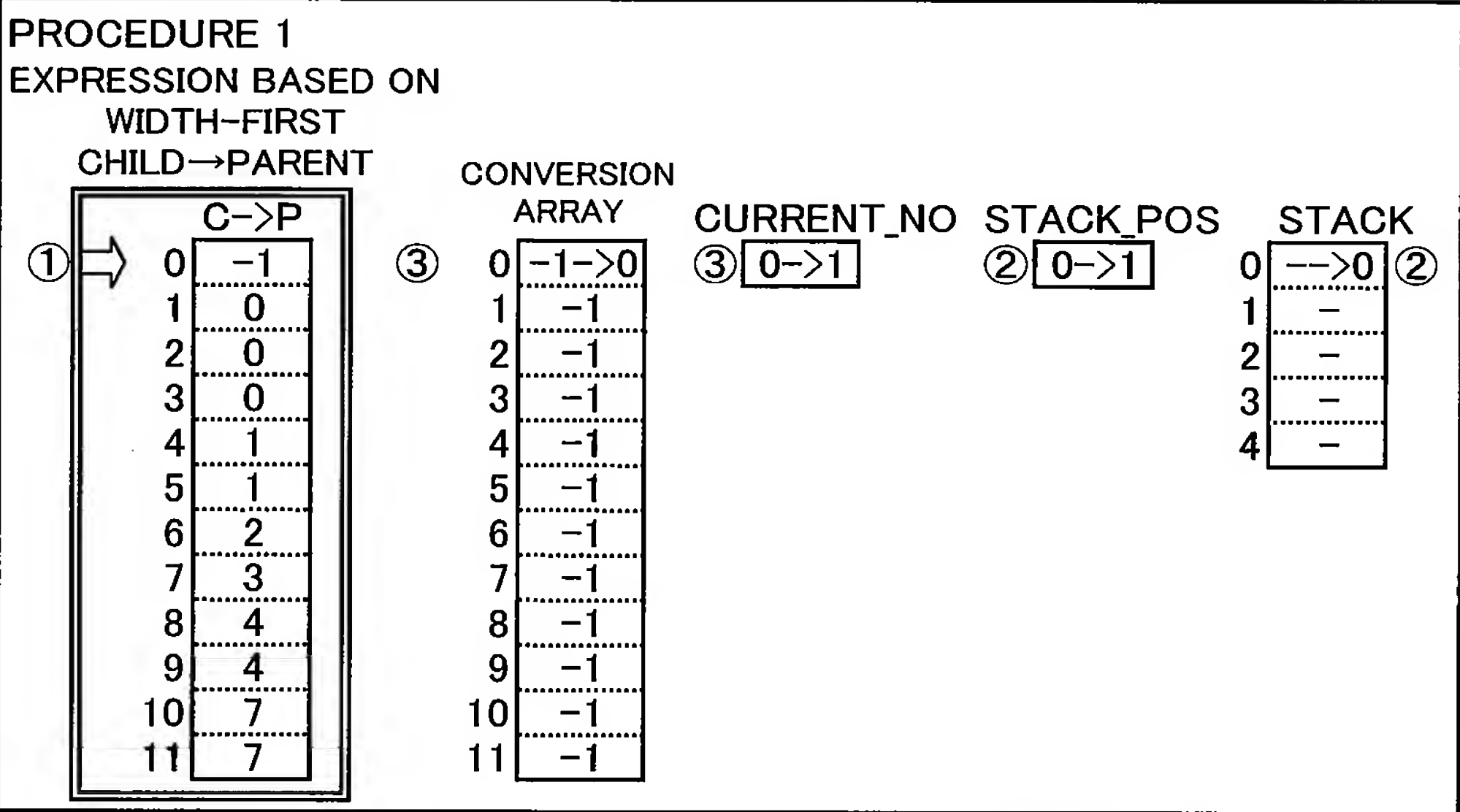


Fig.37B

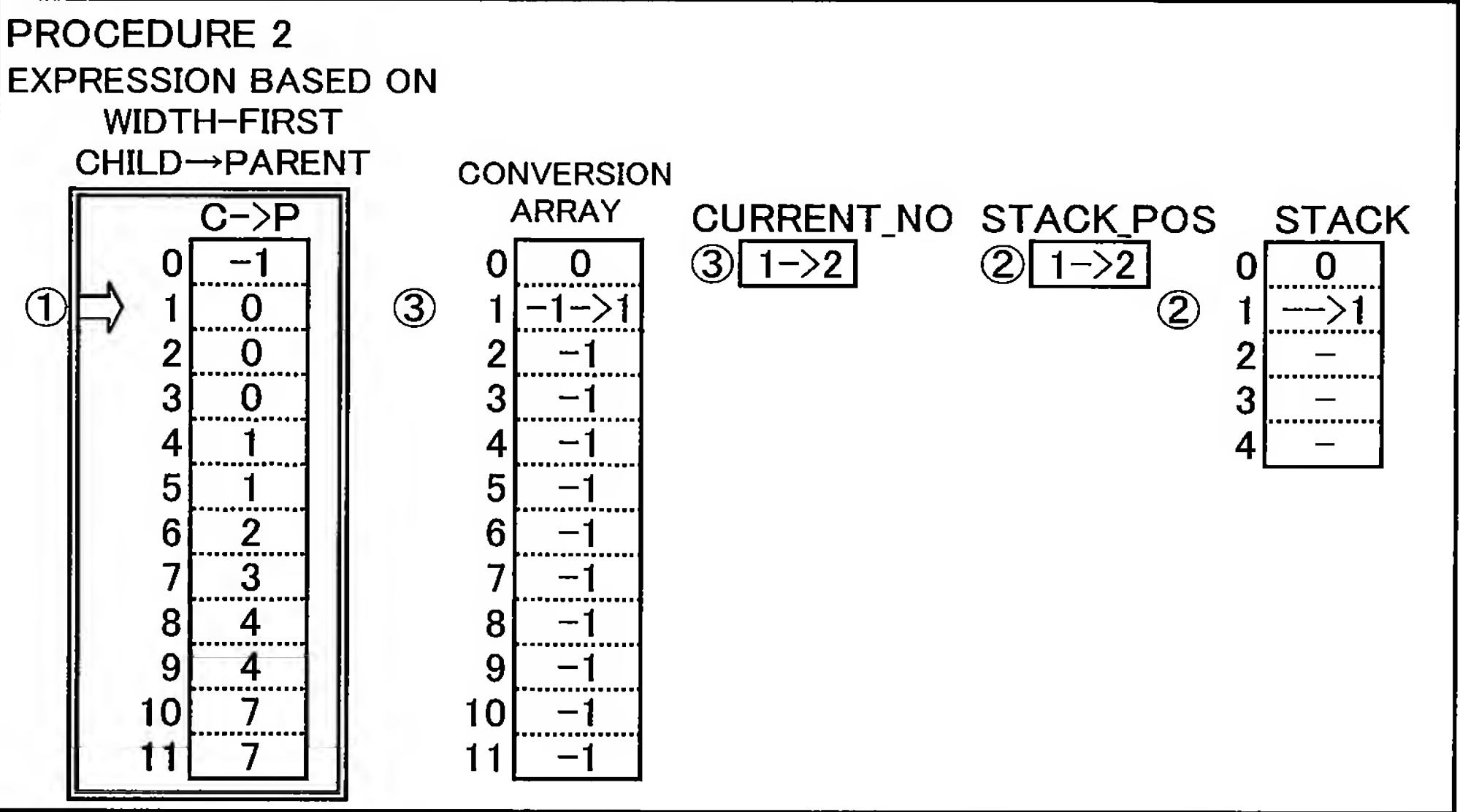


Fig.37C

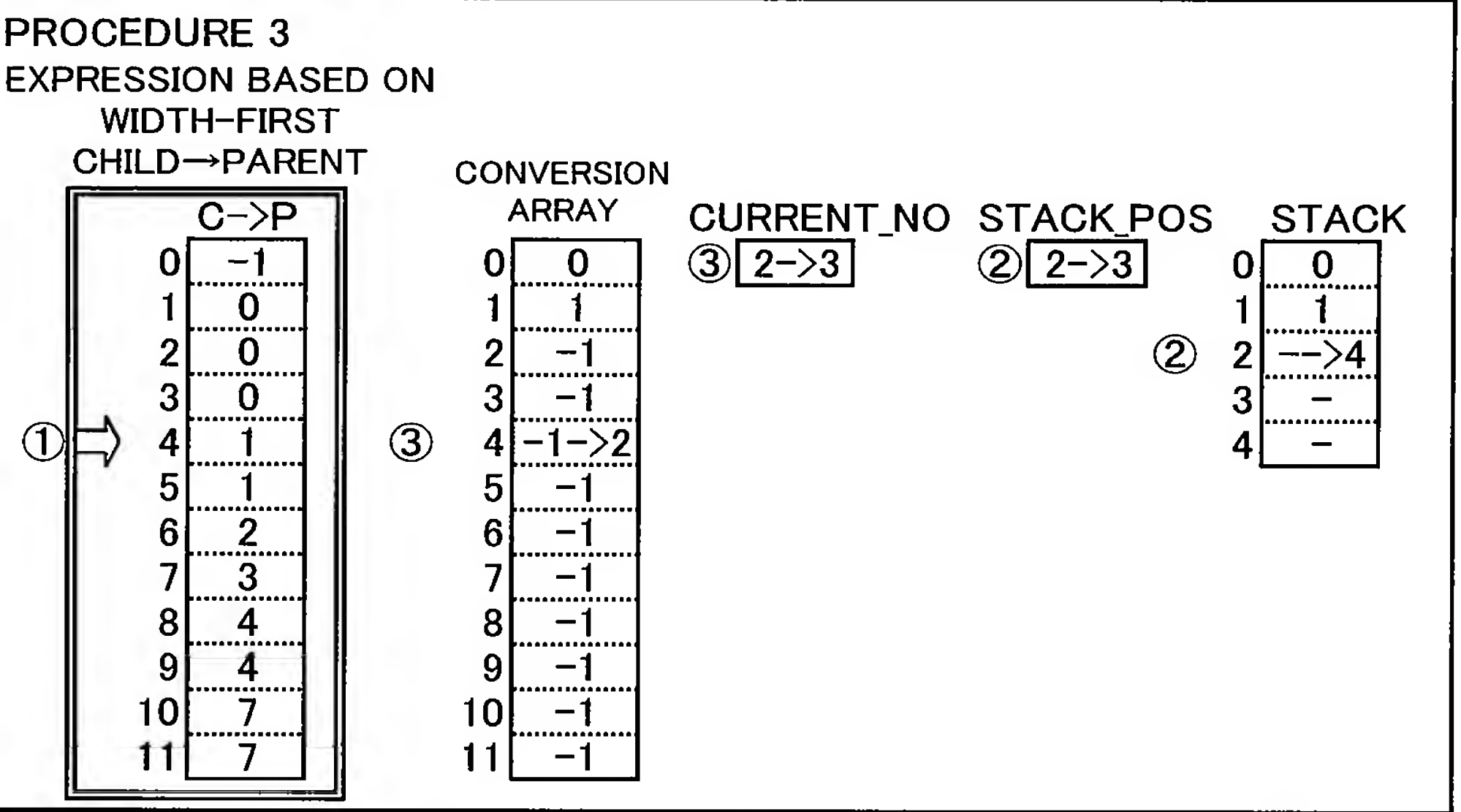


Fig.38A

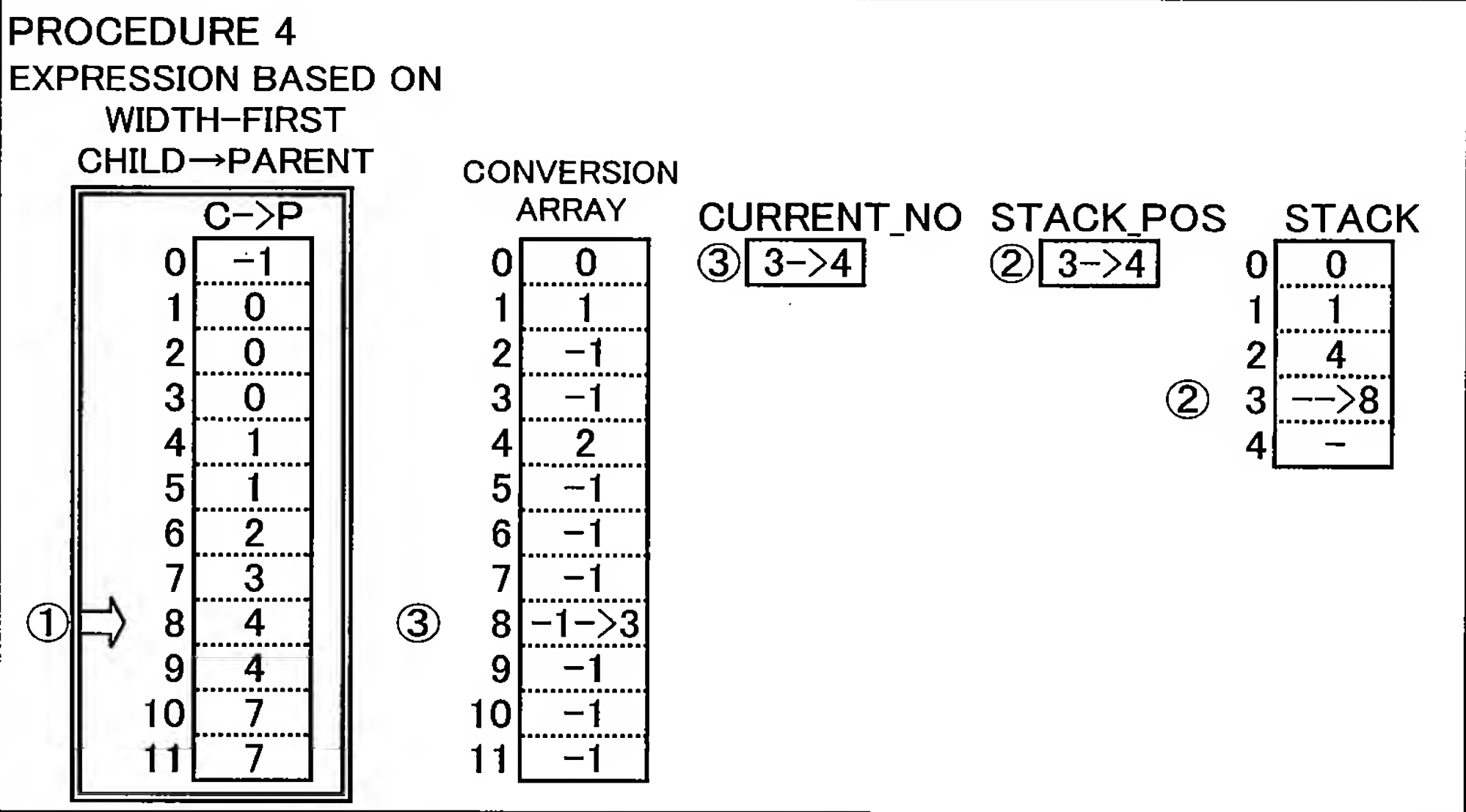


Fig.38B

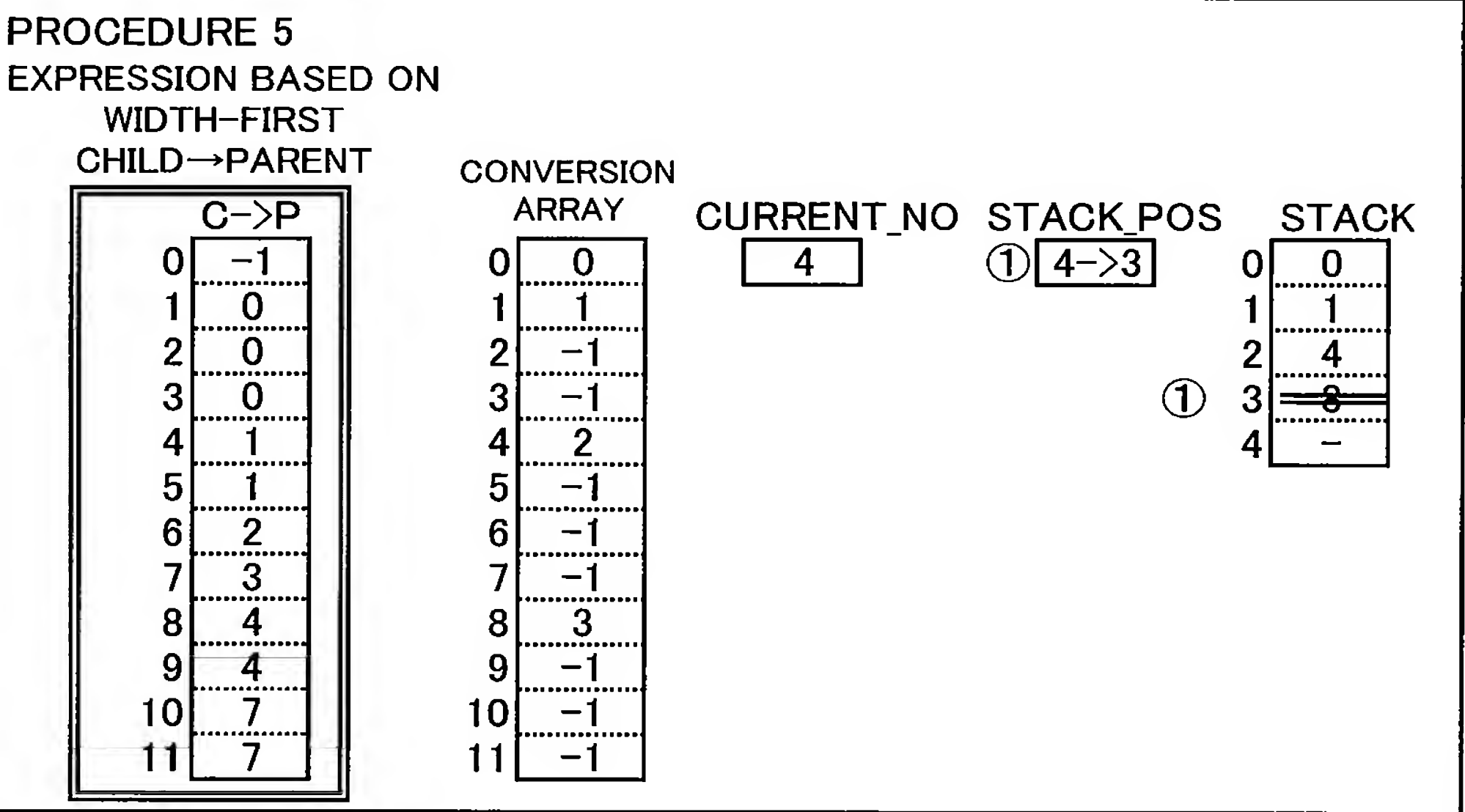


Fig.38C

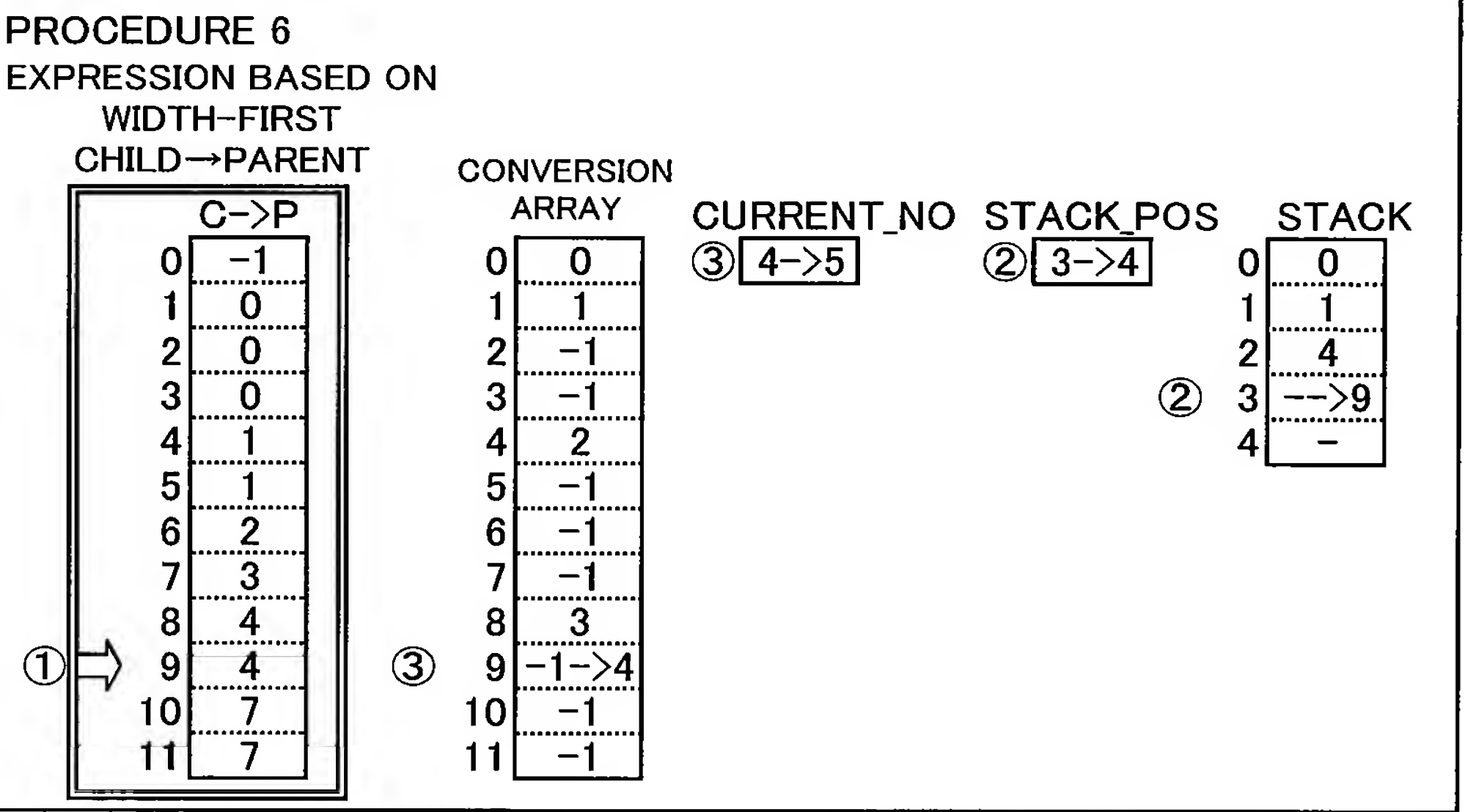


Fig.39A

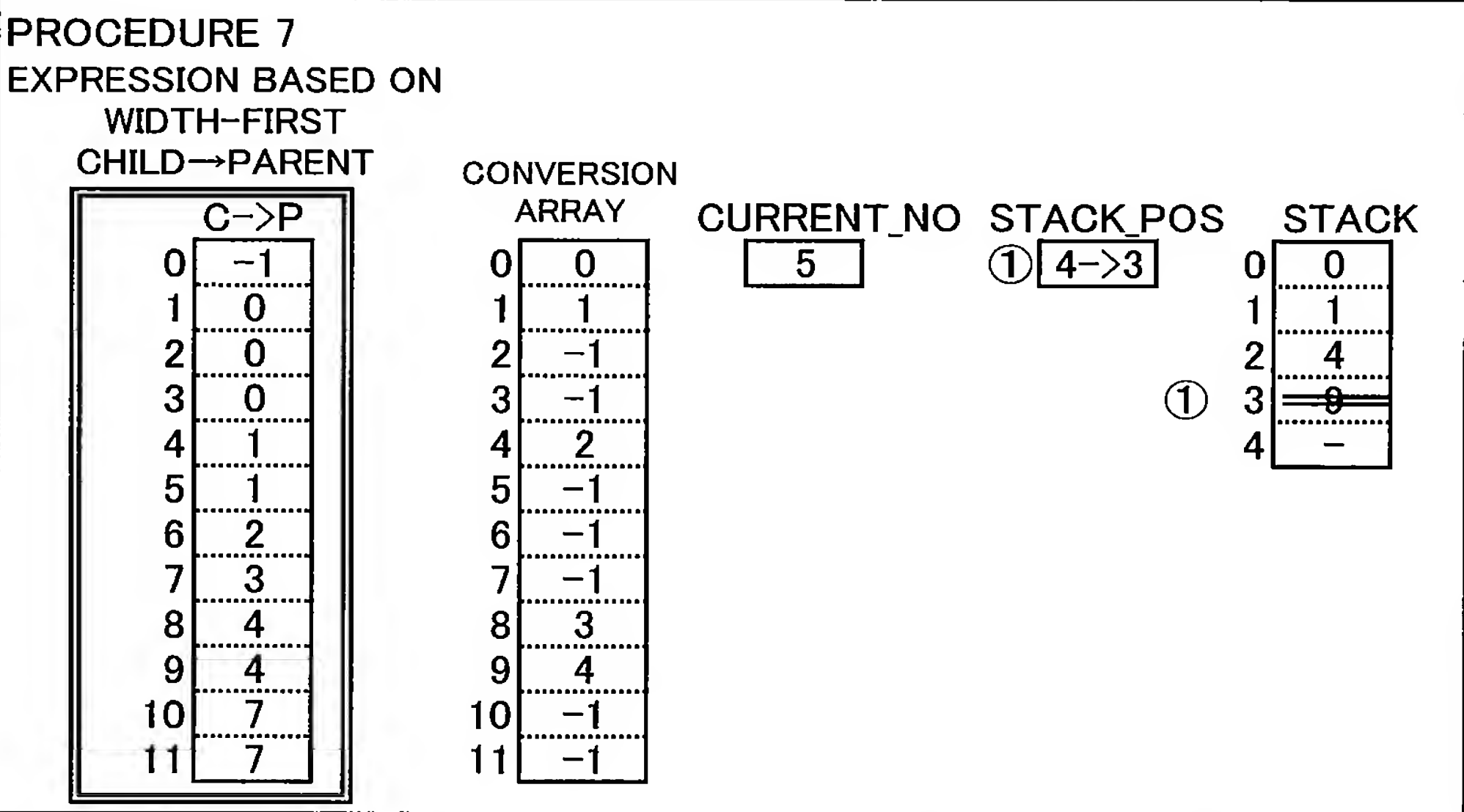


Fig.39B

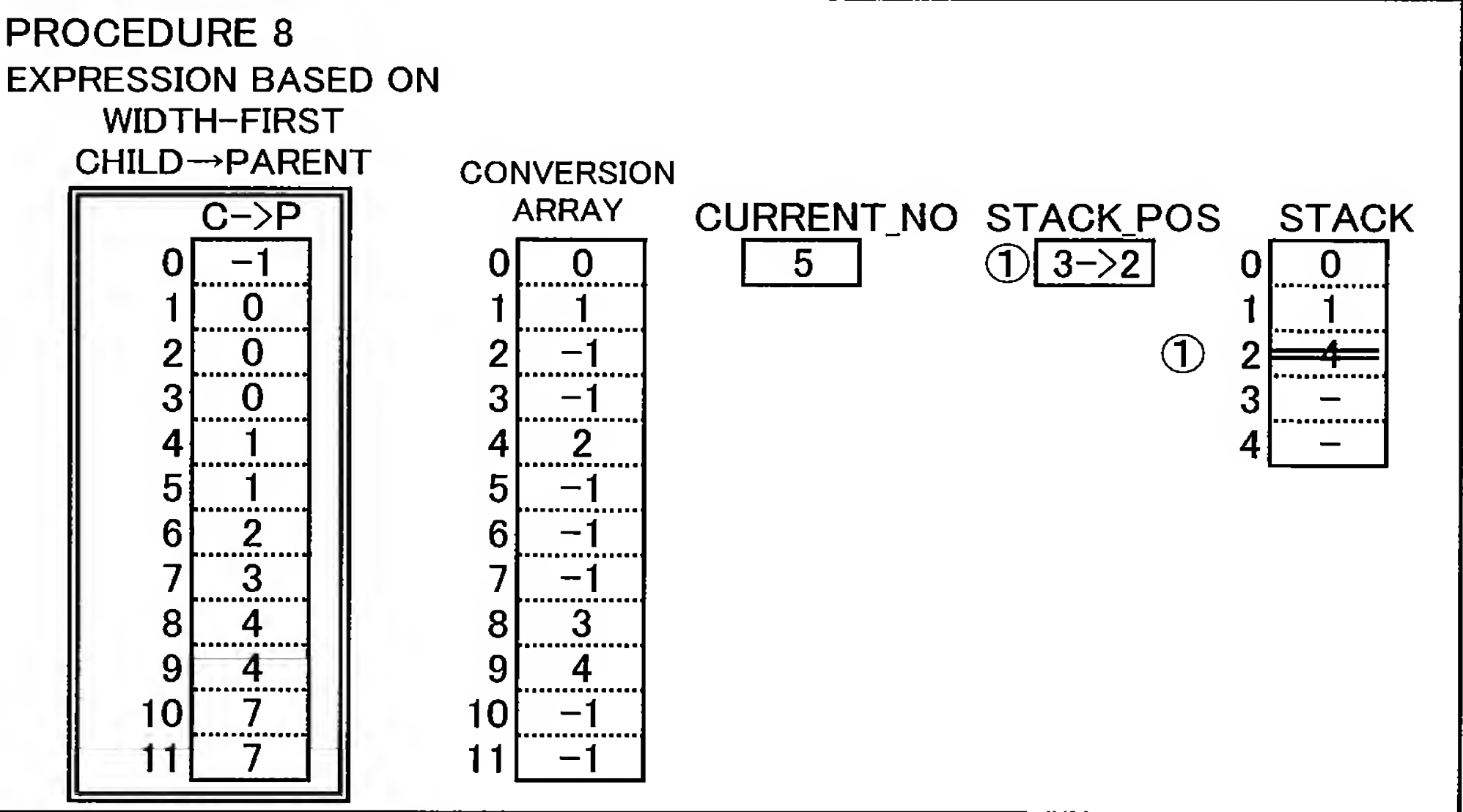


Fig.39C

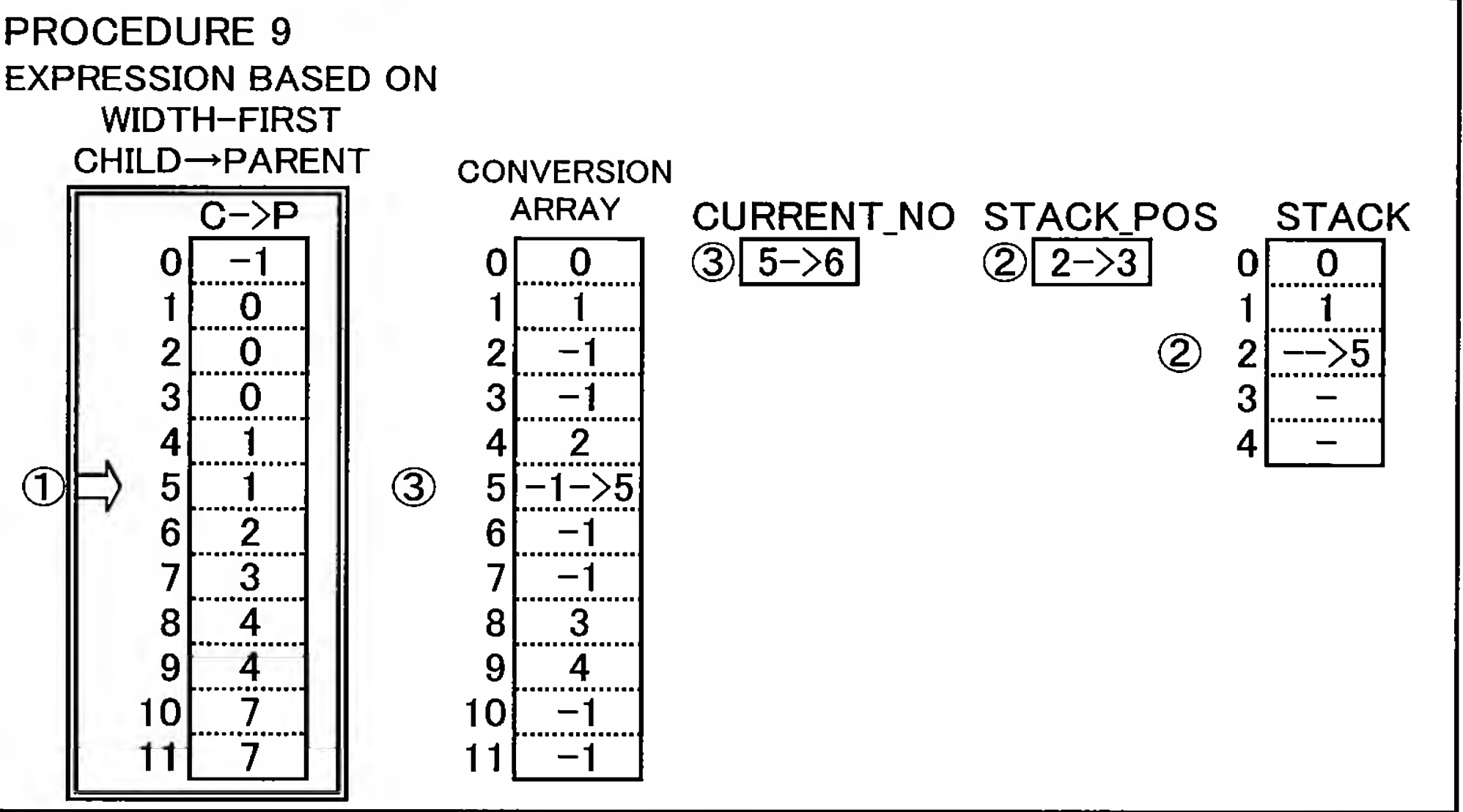


Fig.40A

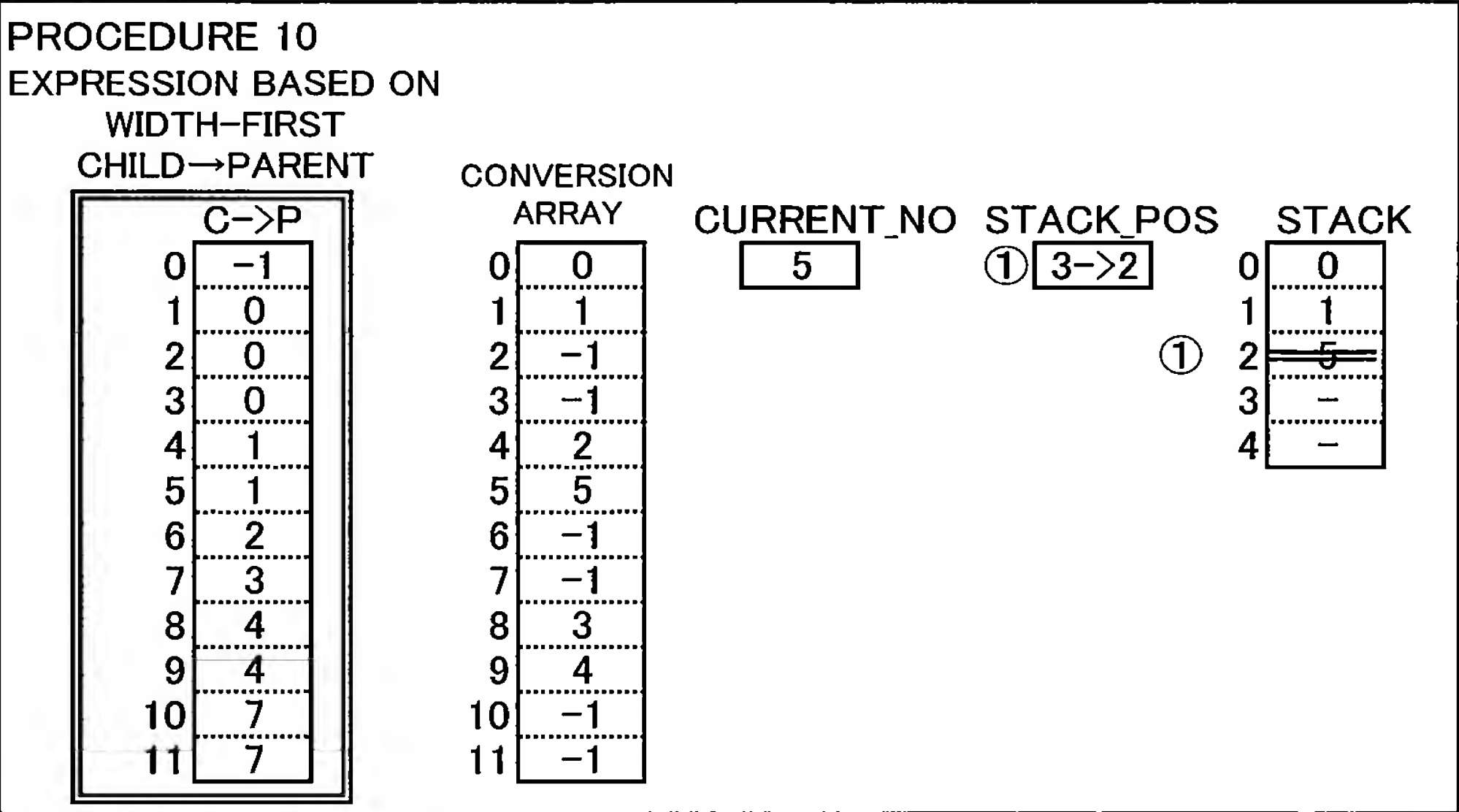


Fig.40B

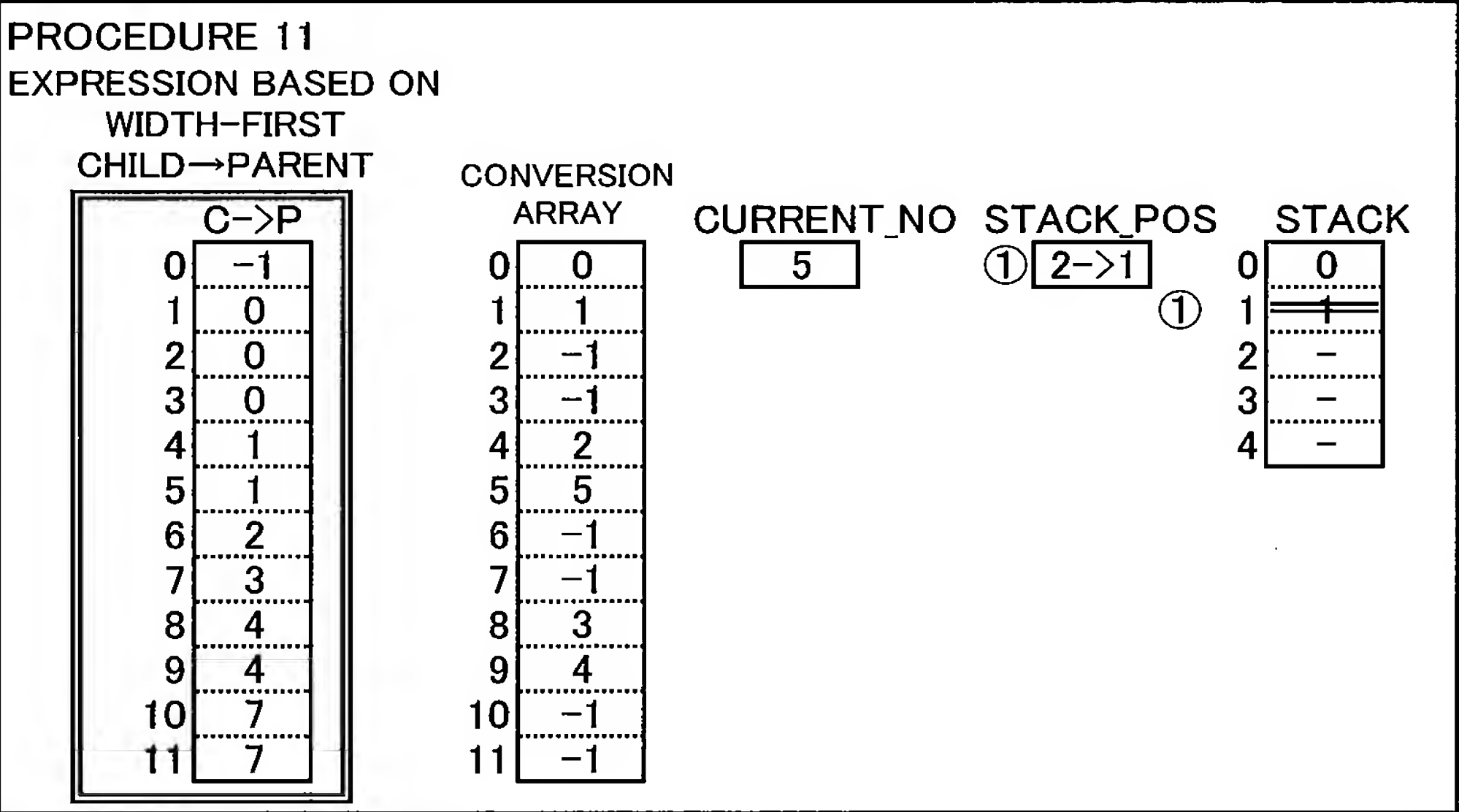


Fig.40C

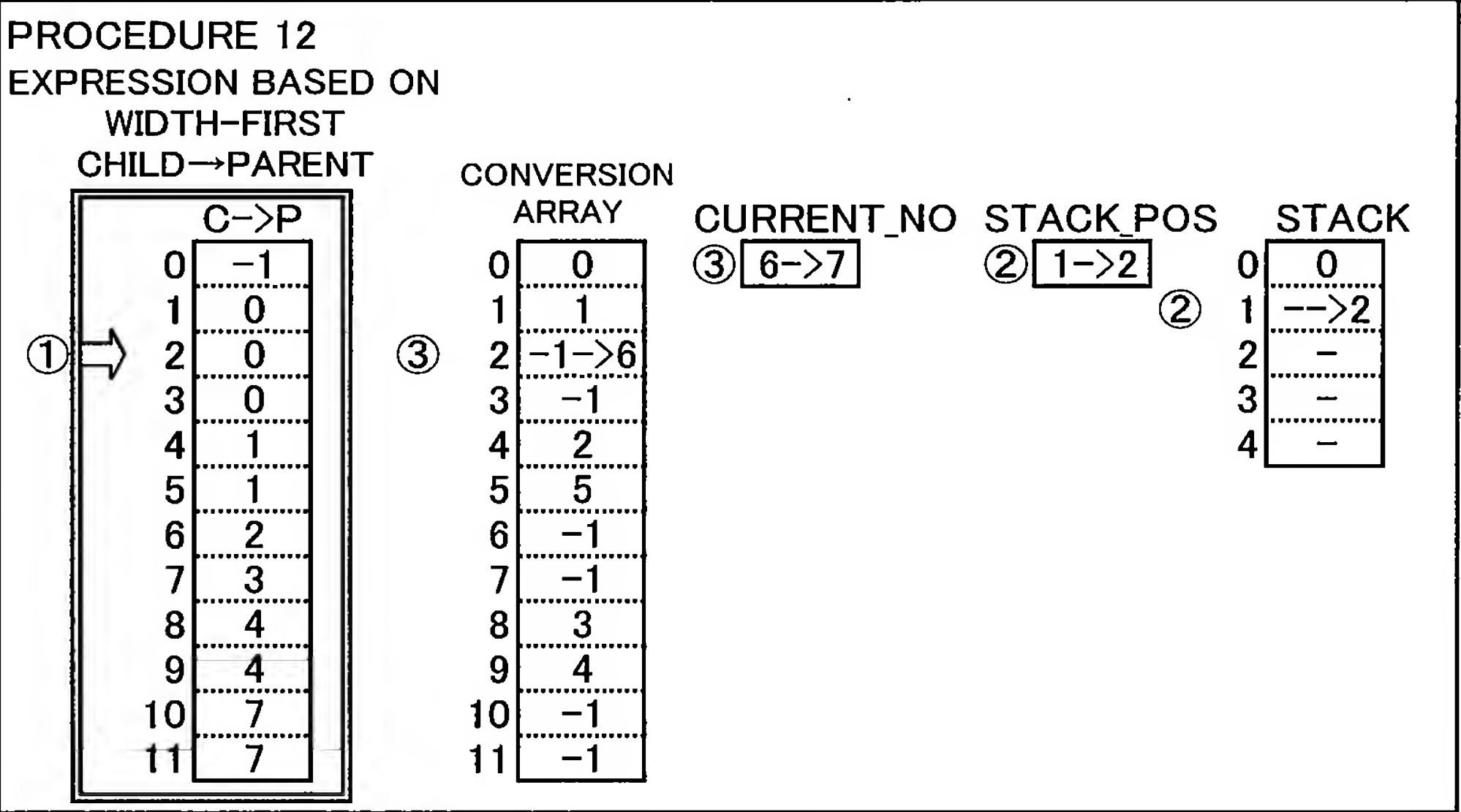


Fig.41A

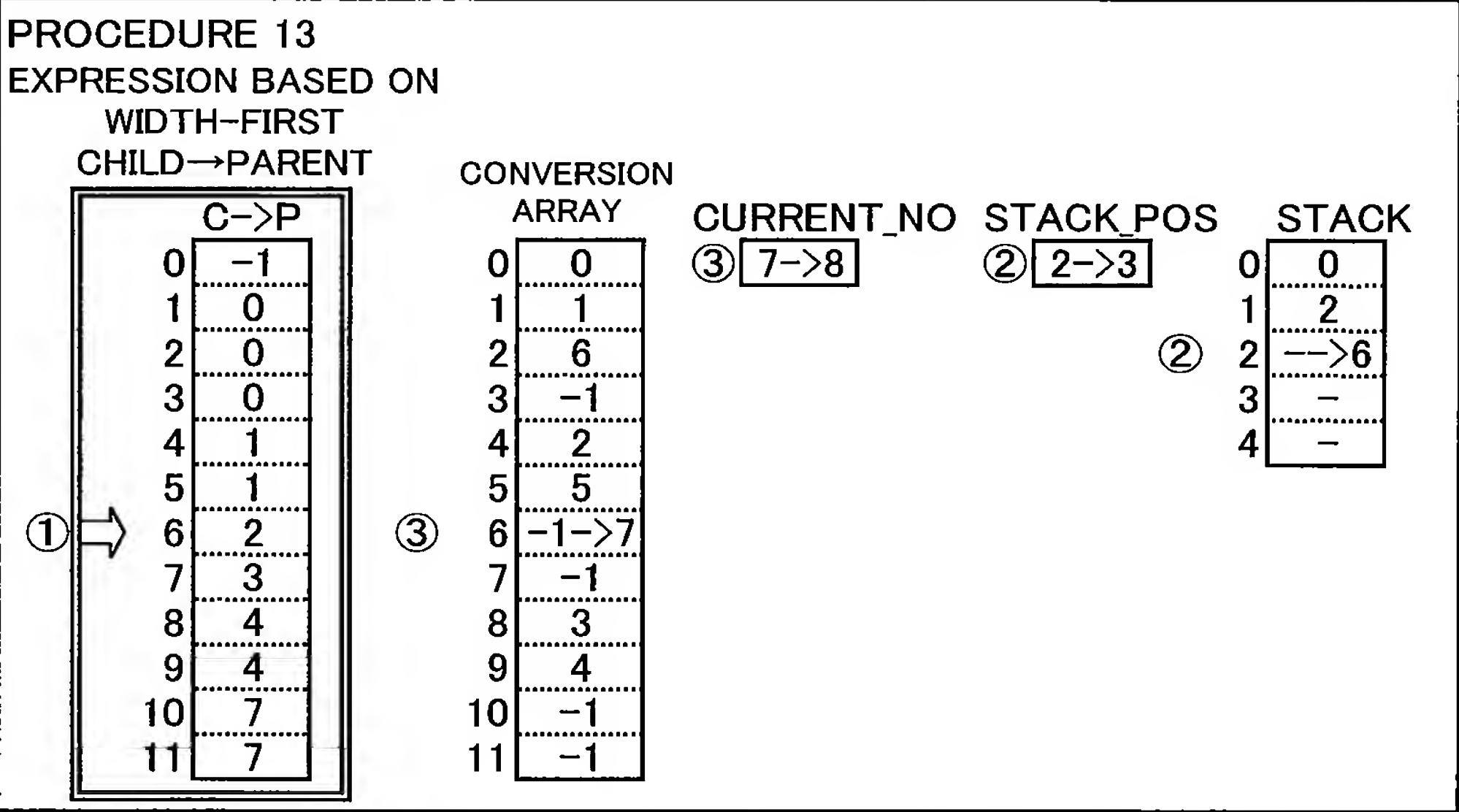


Fig.41B

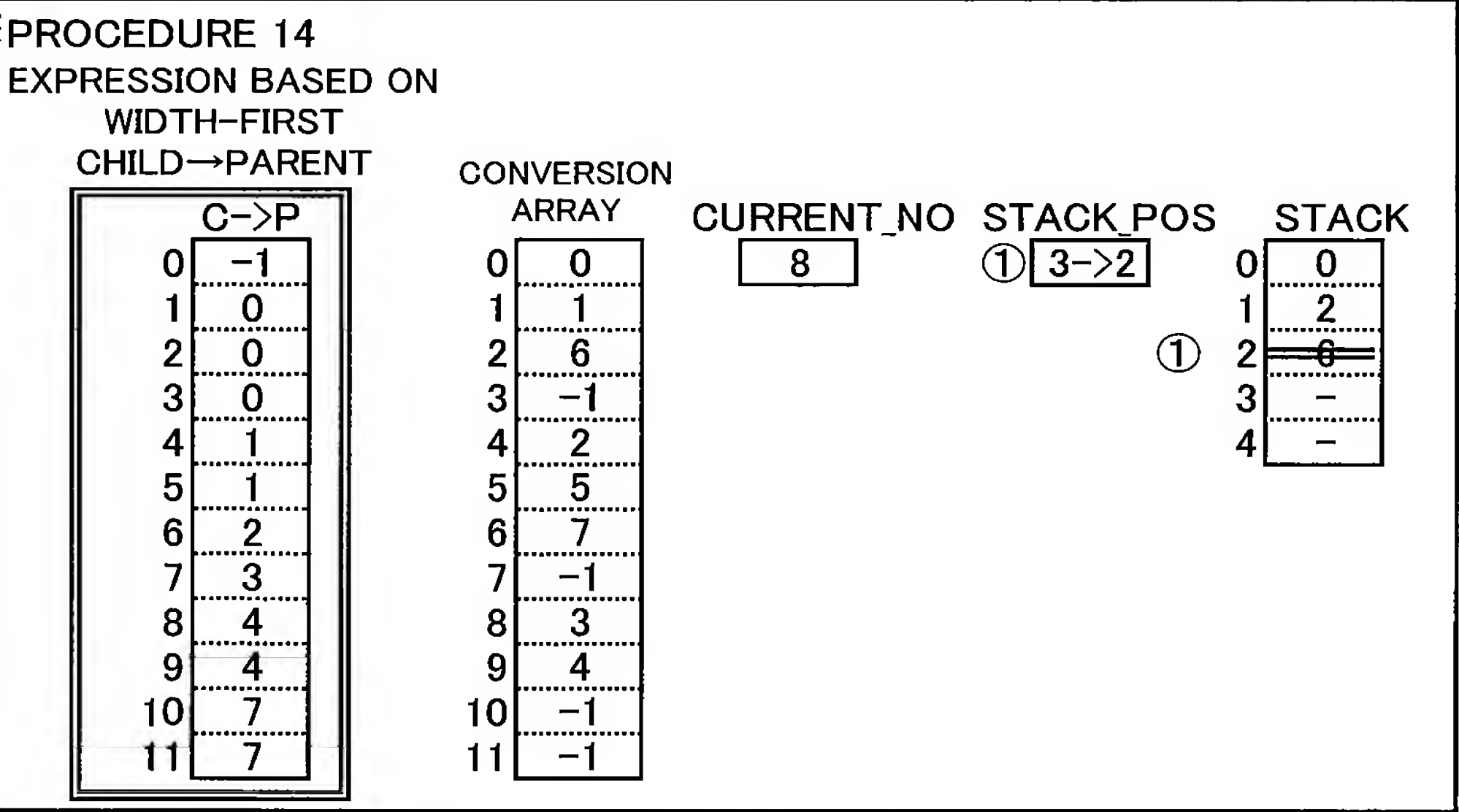


Fig.41C

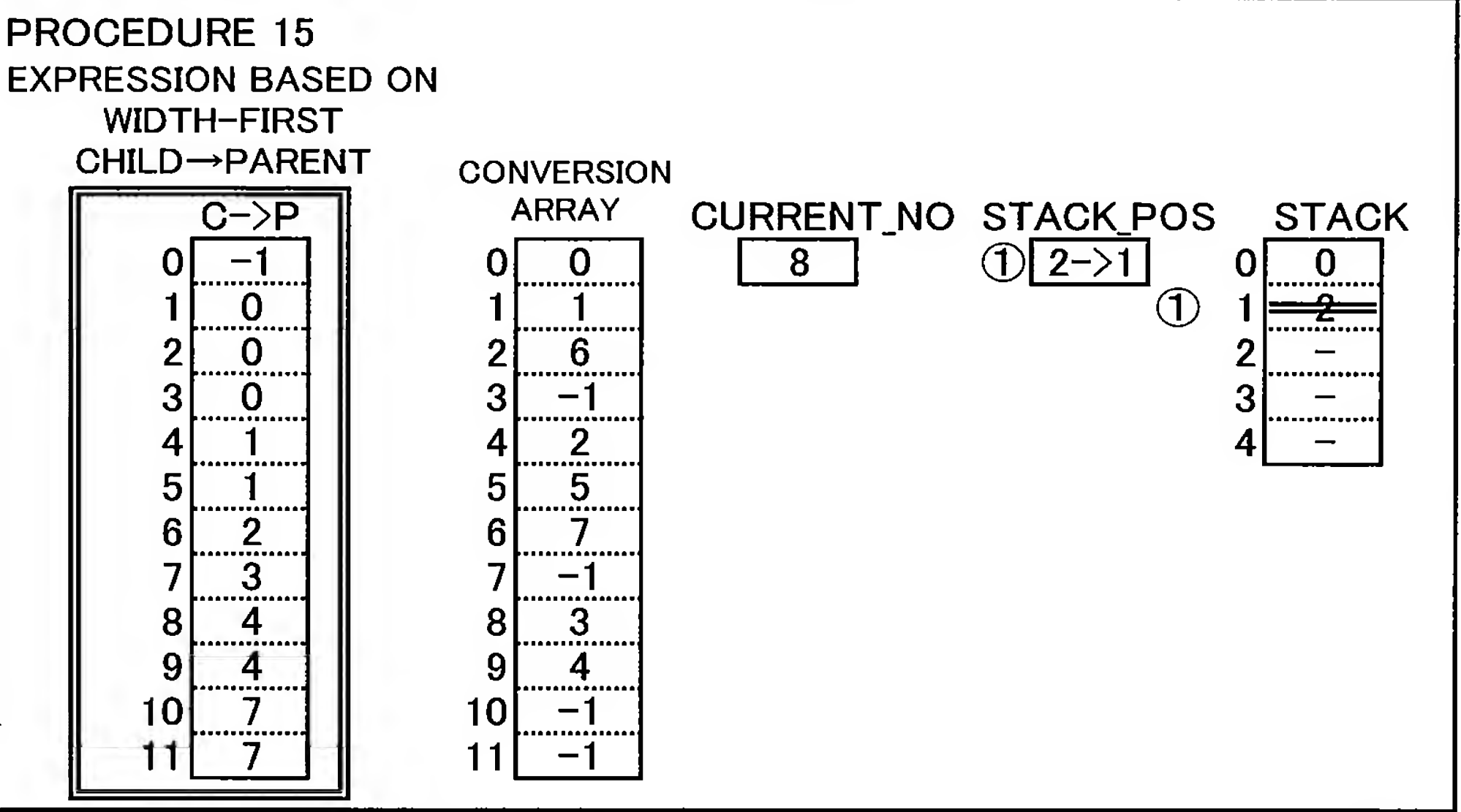


Fig.42A

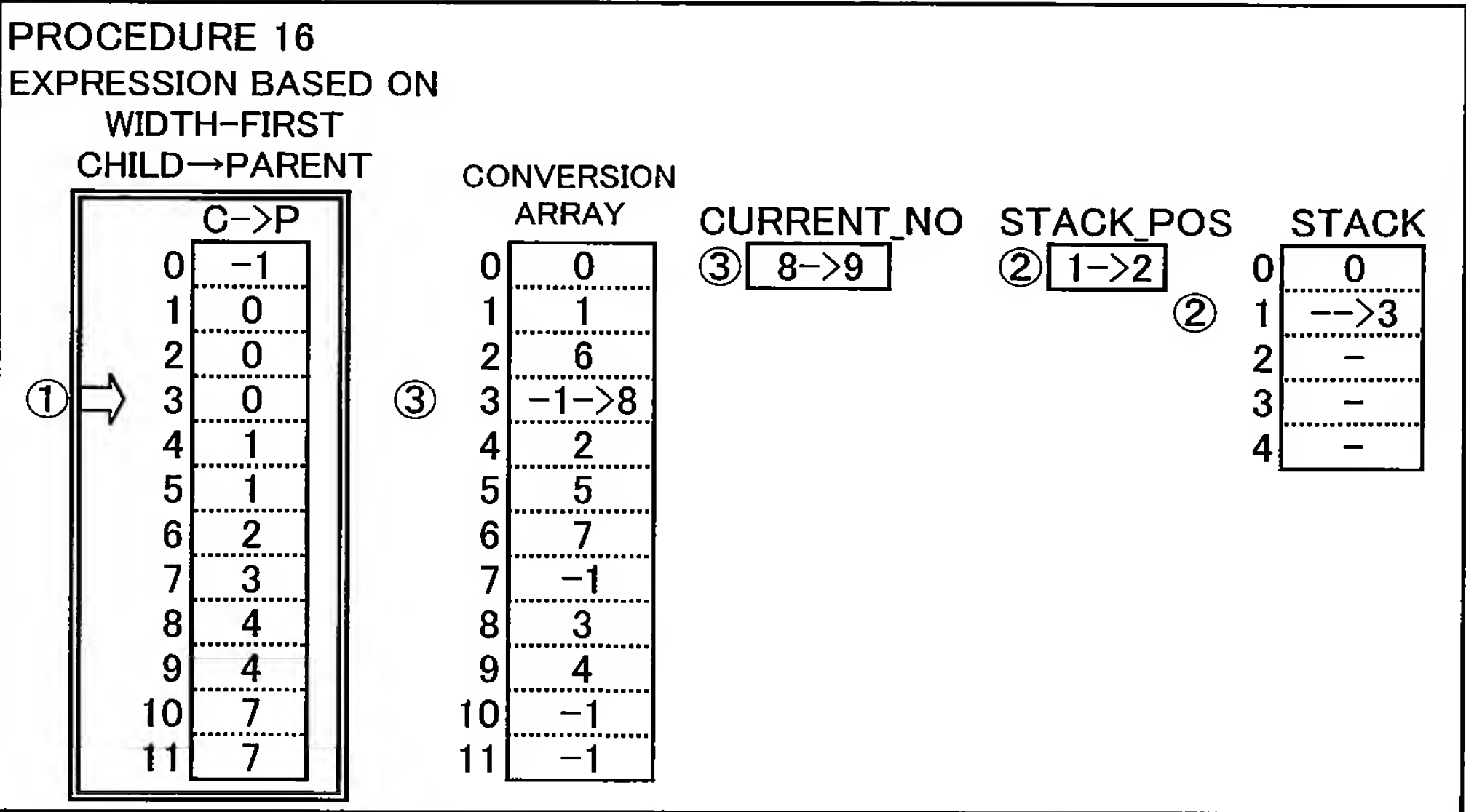


Fig.42B

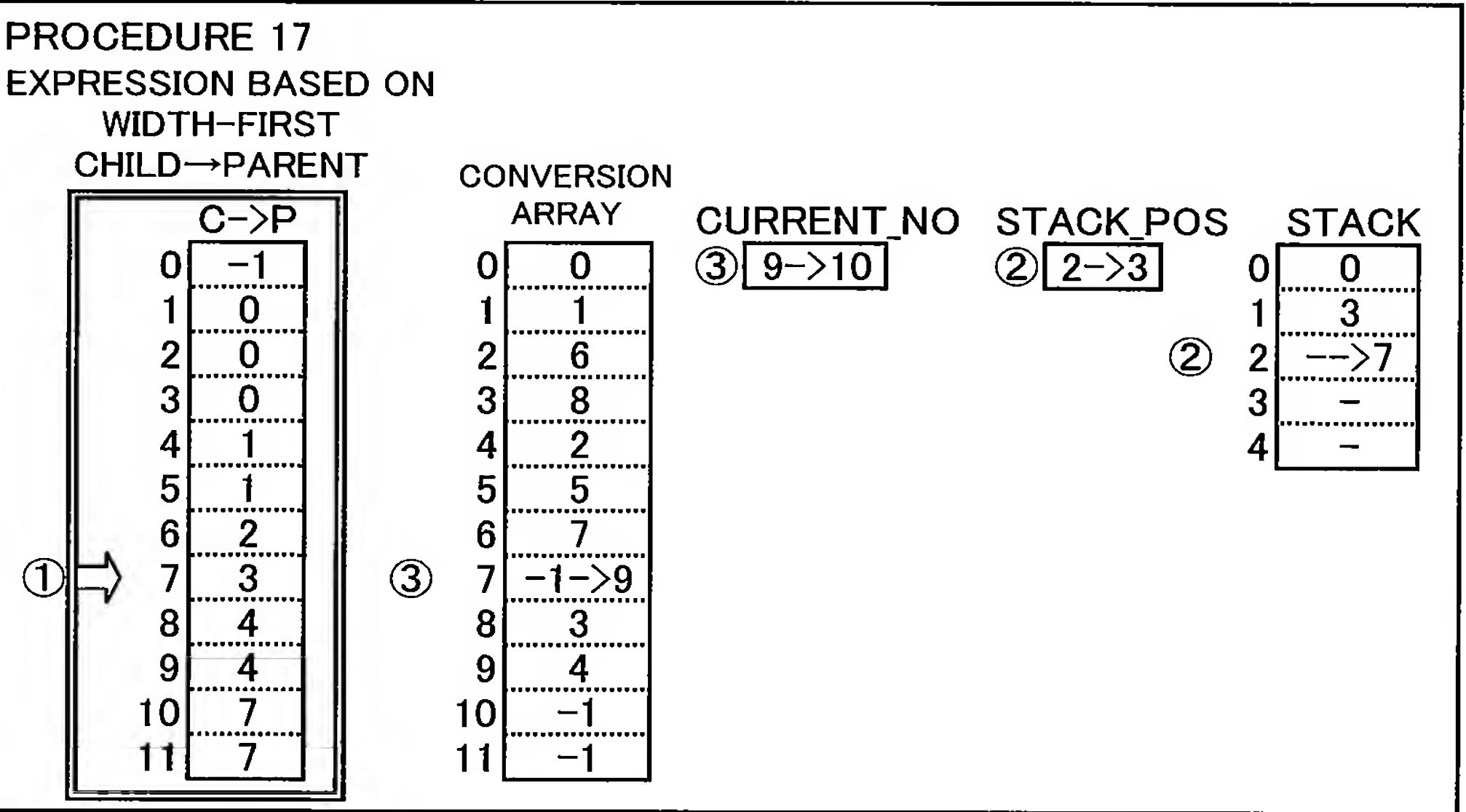


Fig.42C

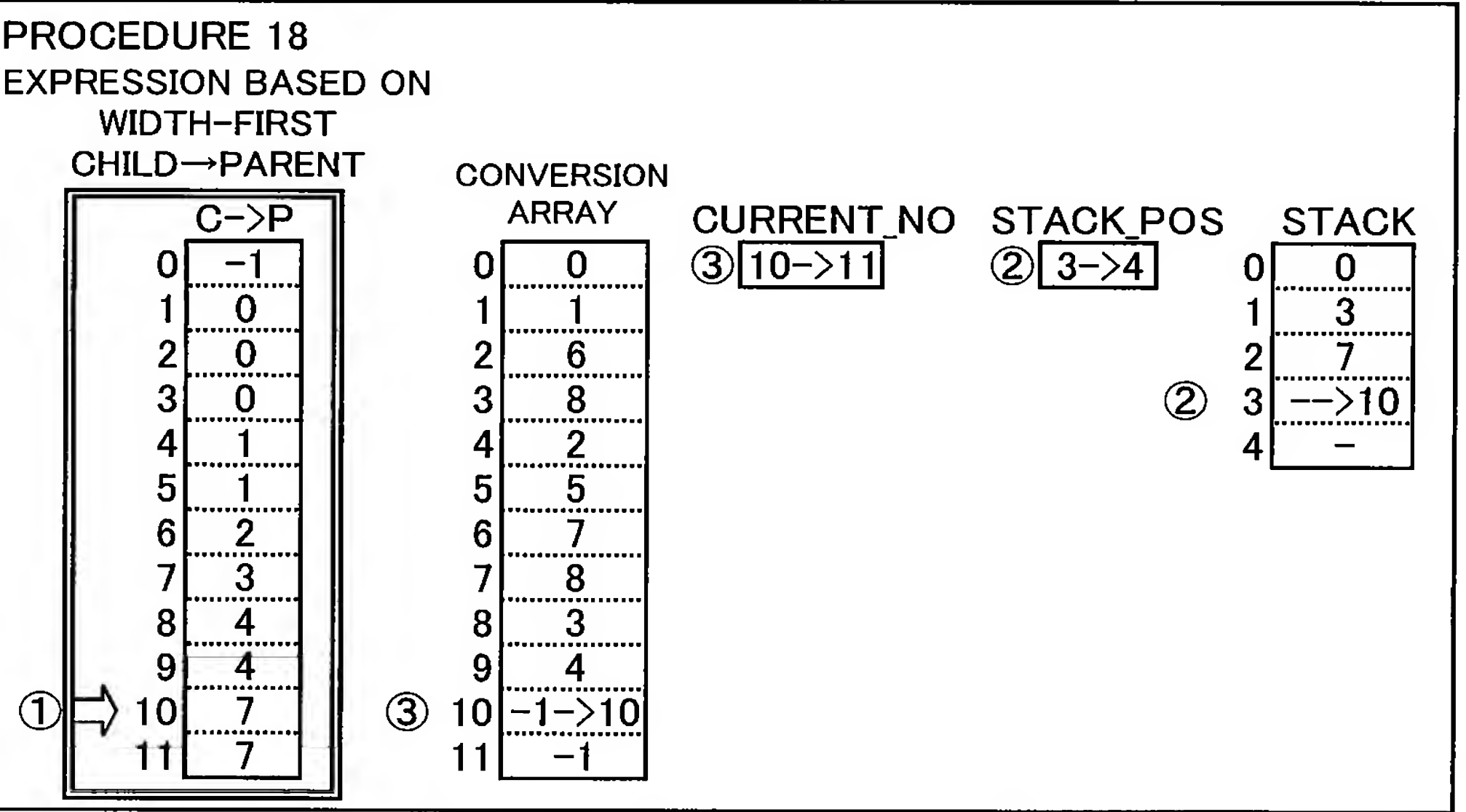


Fig.43A

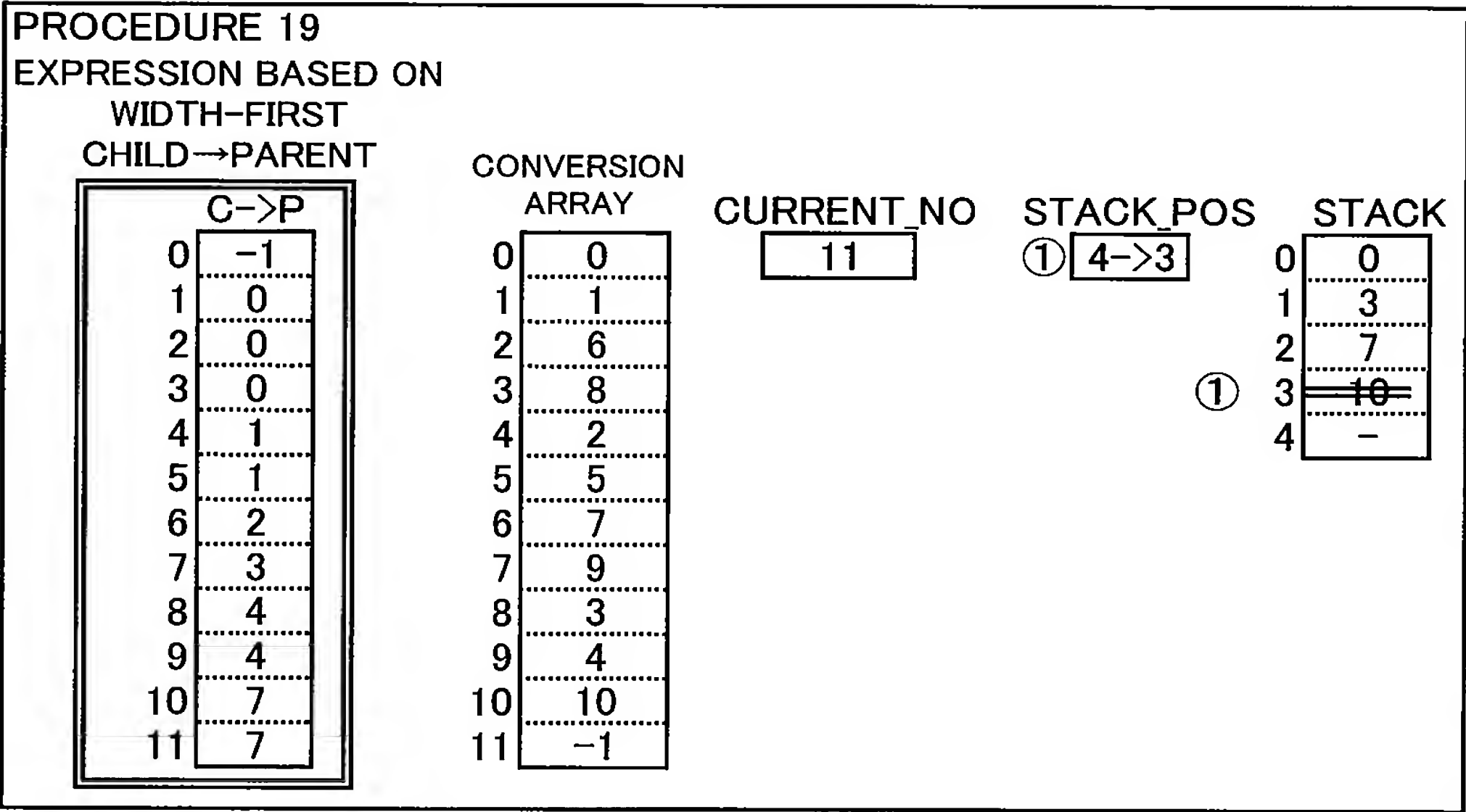


Fig.43B

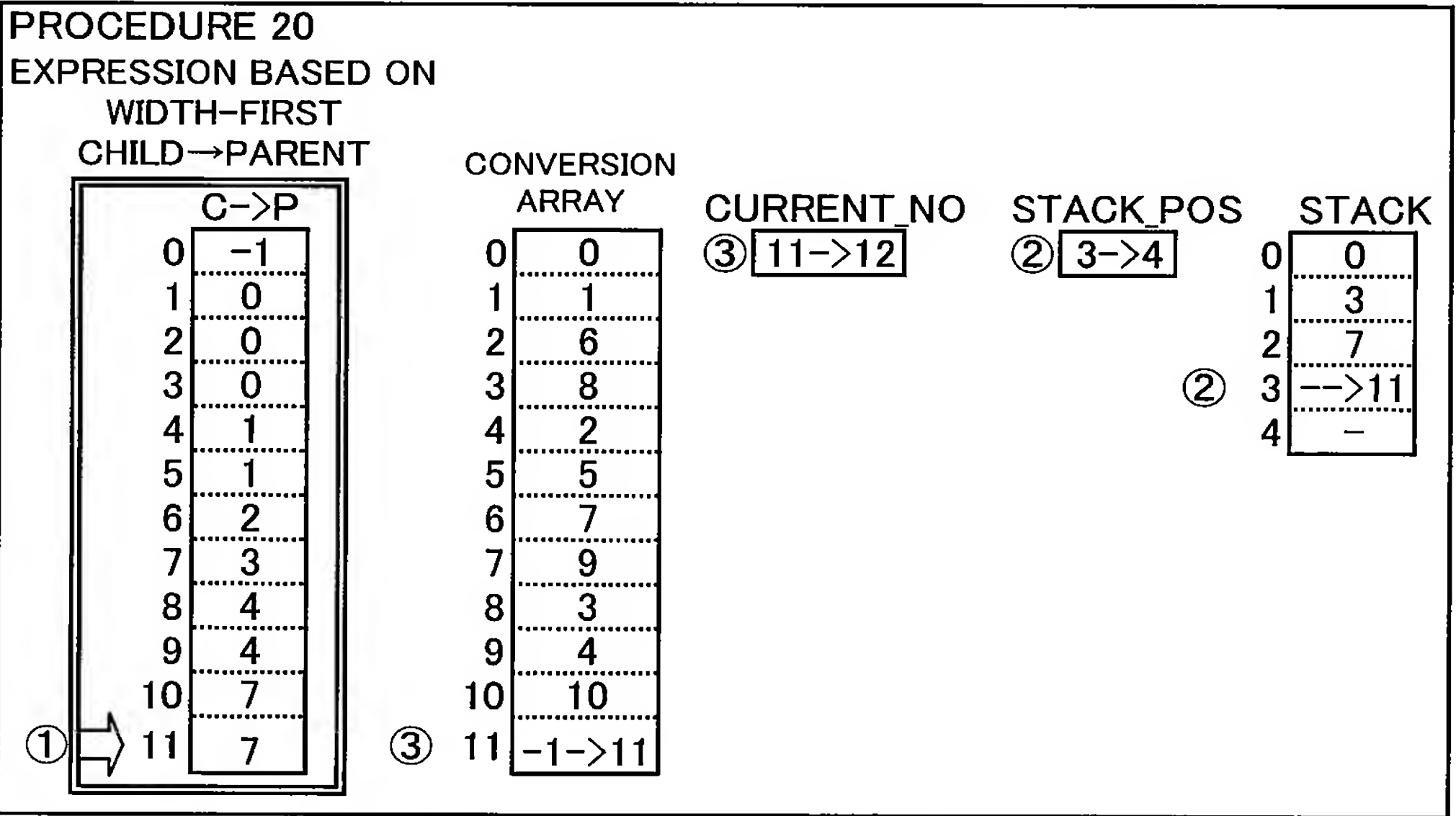


Fig.44

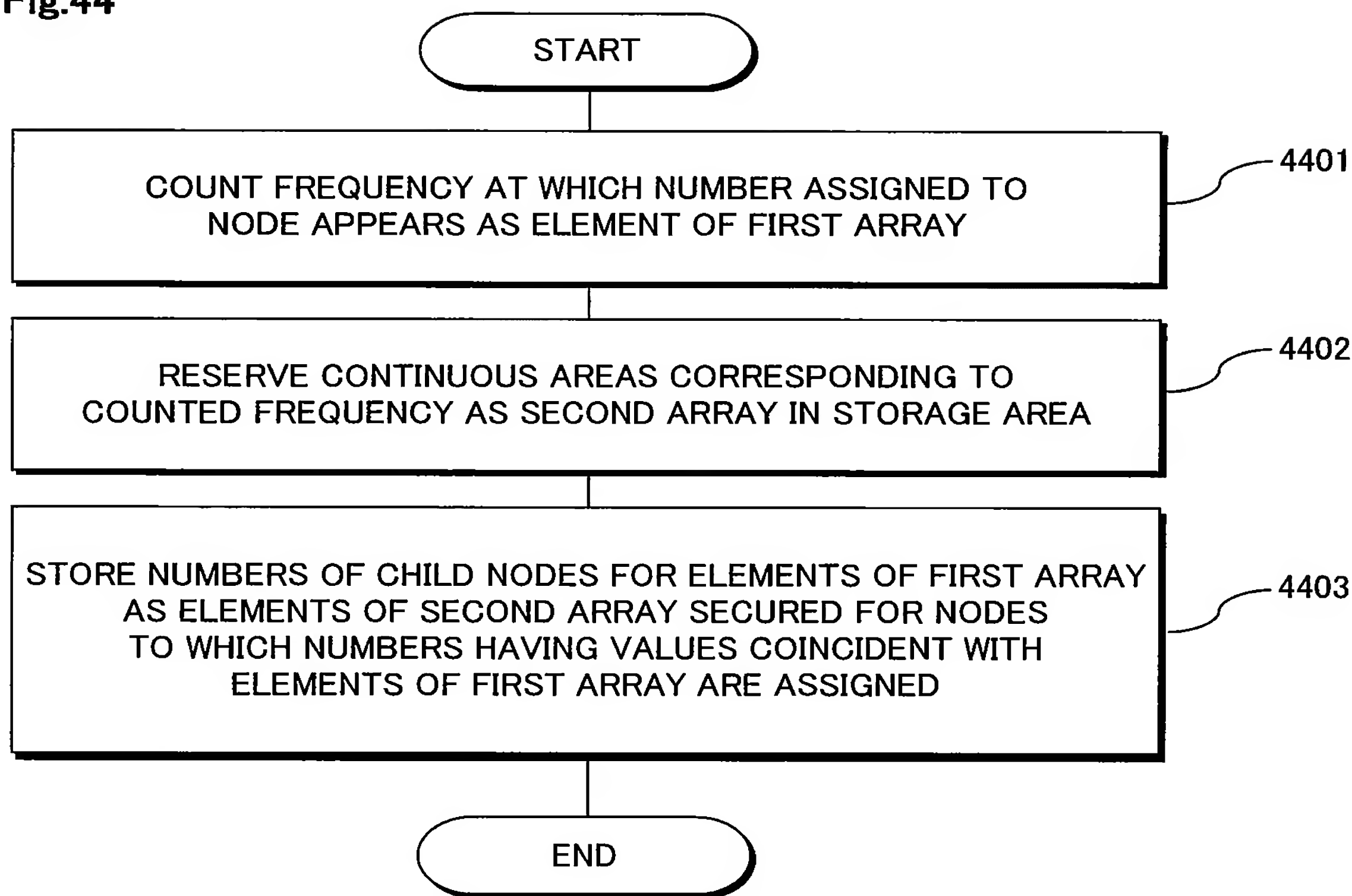


Fig.45A

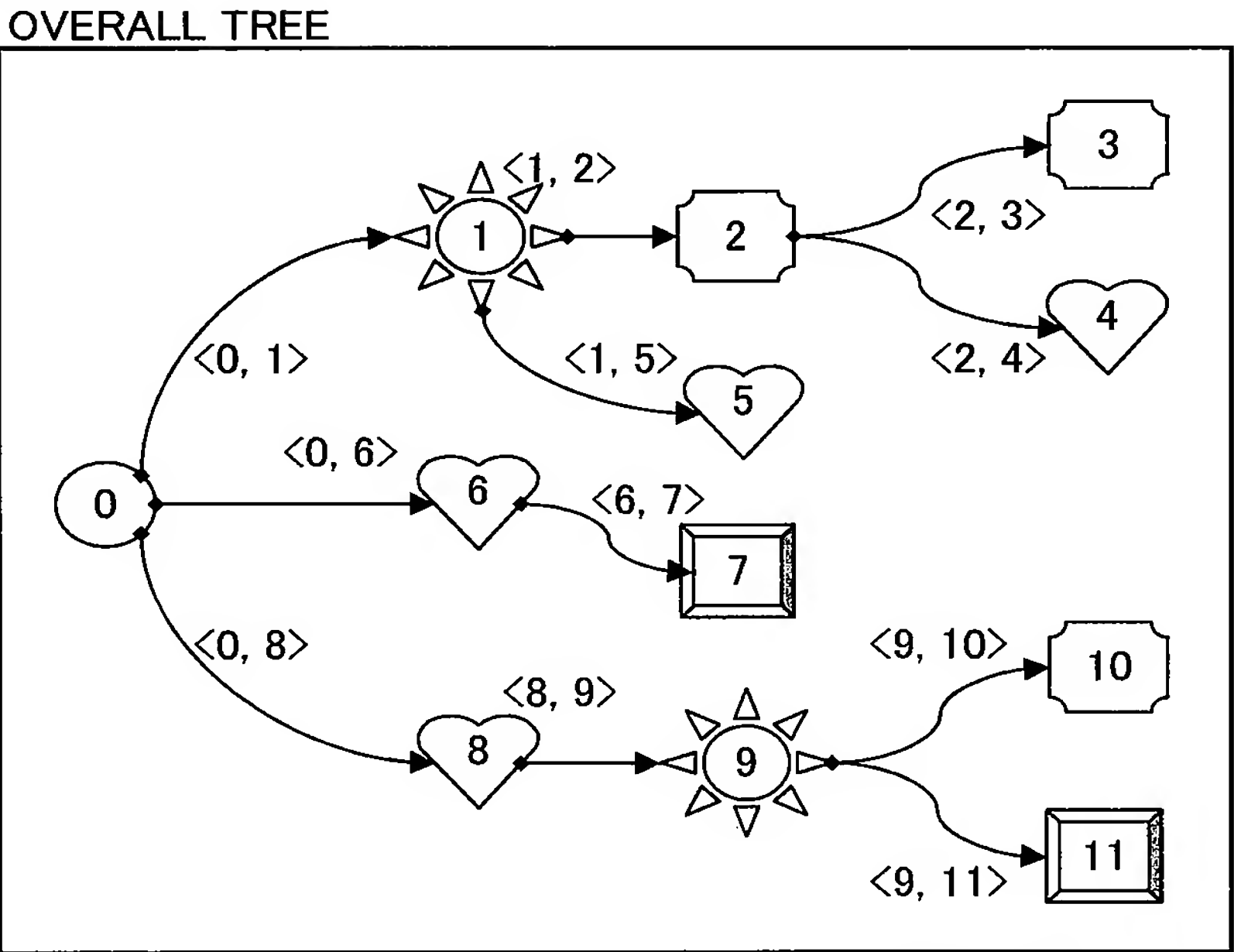


Fig.45B

EXPRESSION BASED ON
CHILD→PARENT

0	-1
1	0
2	1
3	2
4	2
5	1
6	0
7	6
8	0
9	8
10	9
11	9

Fig.45C

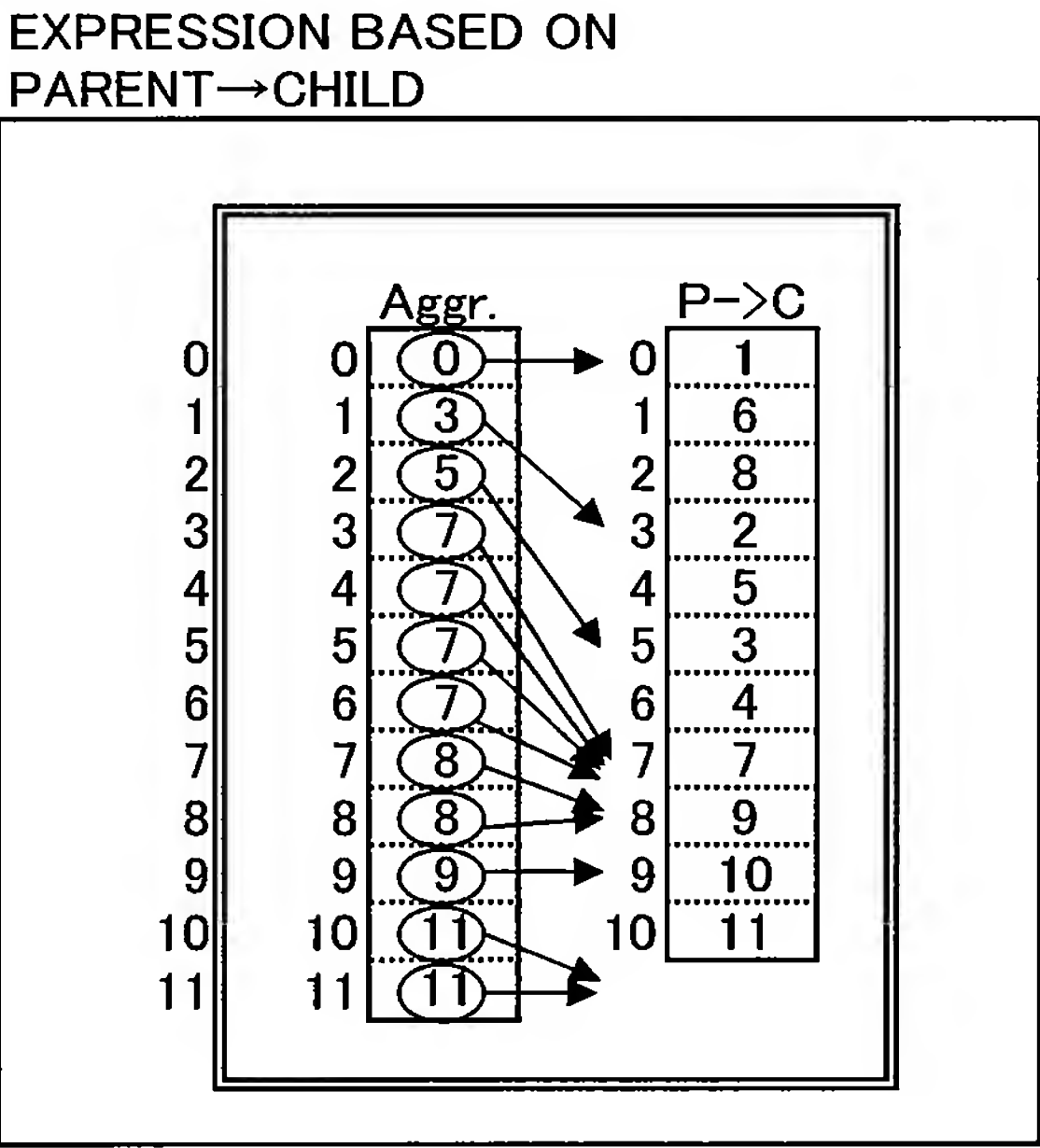


Fig.46A

PROCEDURE 1: RESERVATION OF AREA AND INITIALIZATION

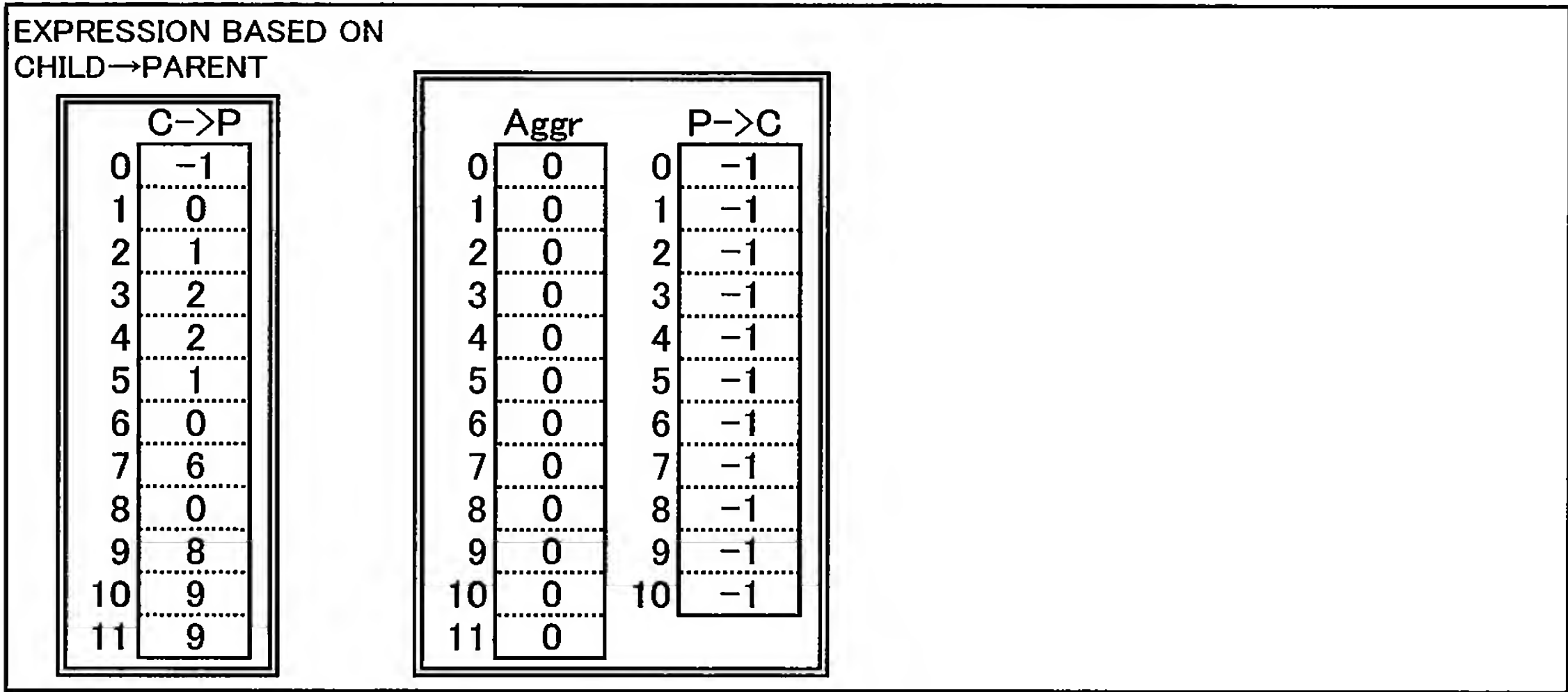


Fig.46B

PROCEDURE 2: COUNT OF EXISTENCE NUMBER

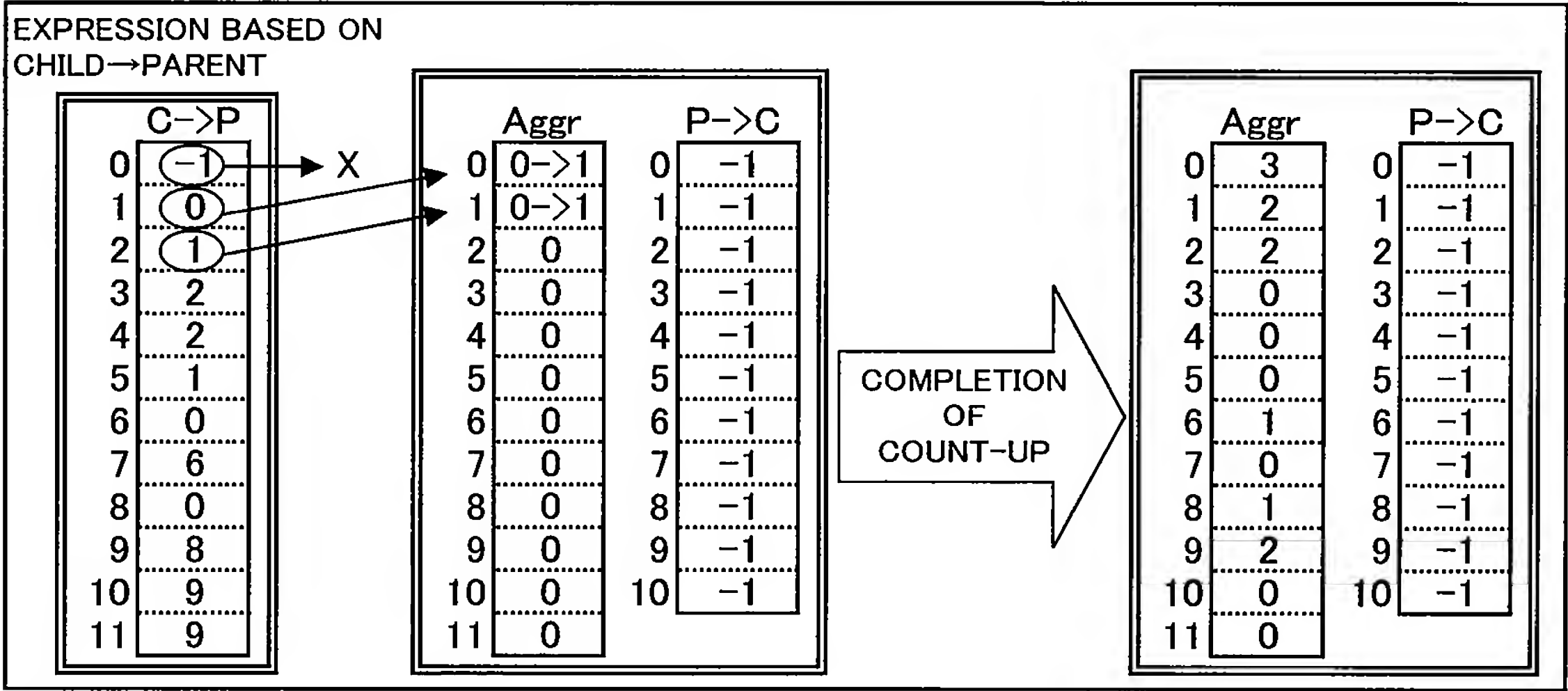


Fig.46C

PROCEDURE 3: CONVERSION OF EXISTENCE NUMBER TO ACCUMULATIVE TOTAL

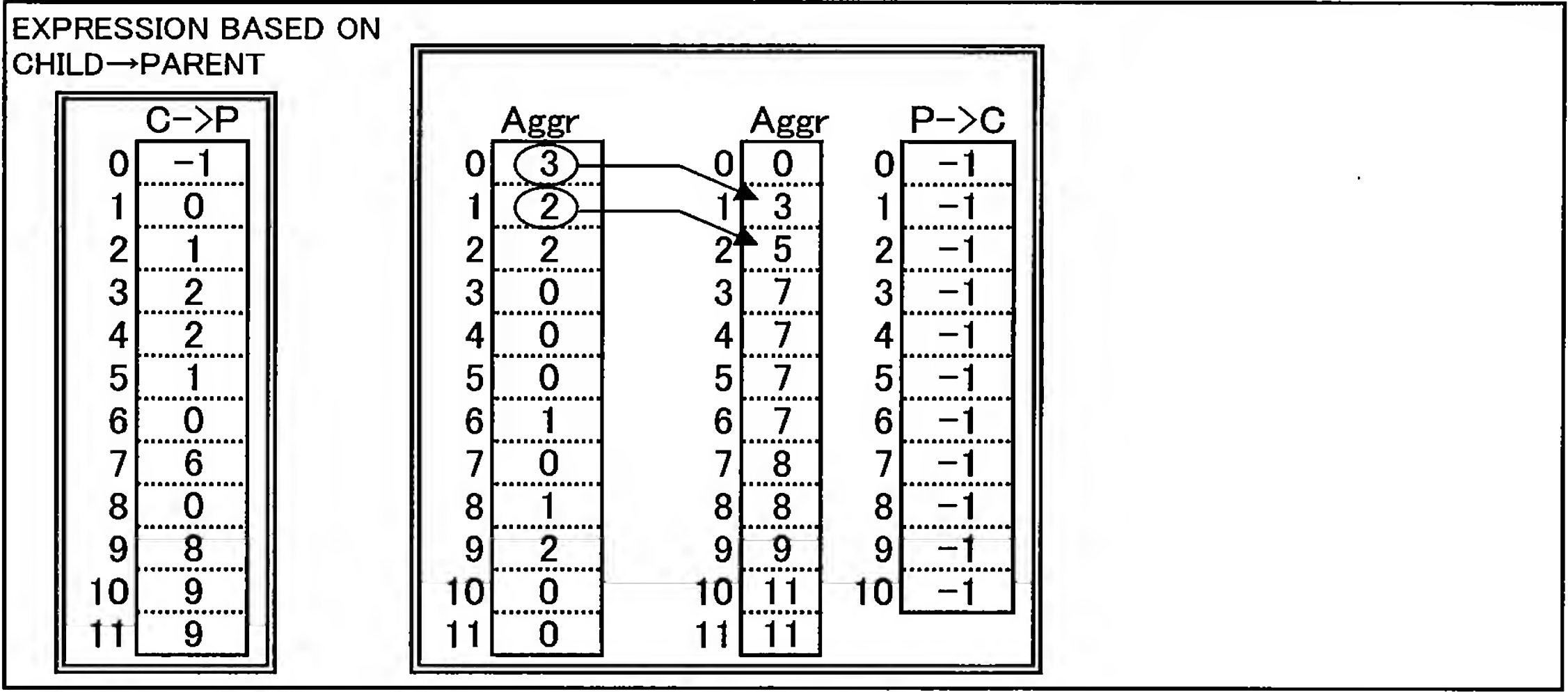


Fig.47A

PROCEDURE 4: TRANSMISSION OF NODE NUMBER

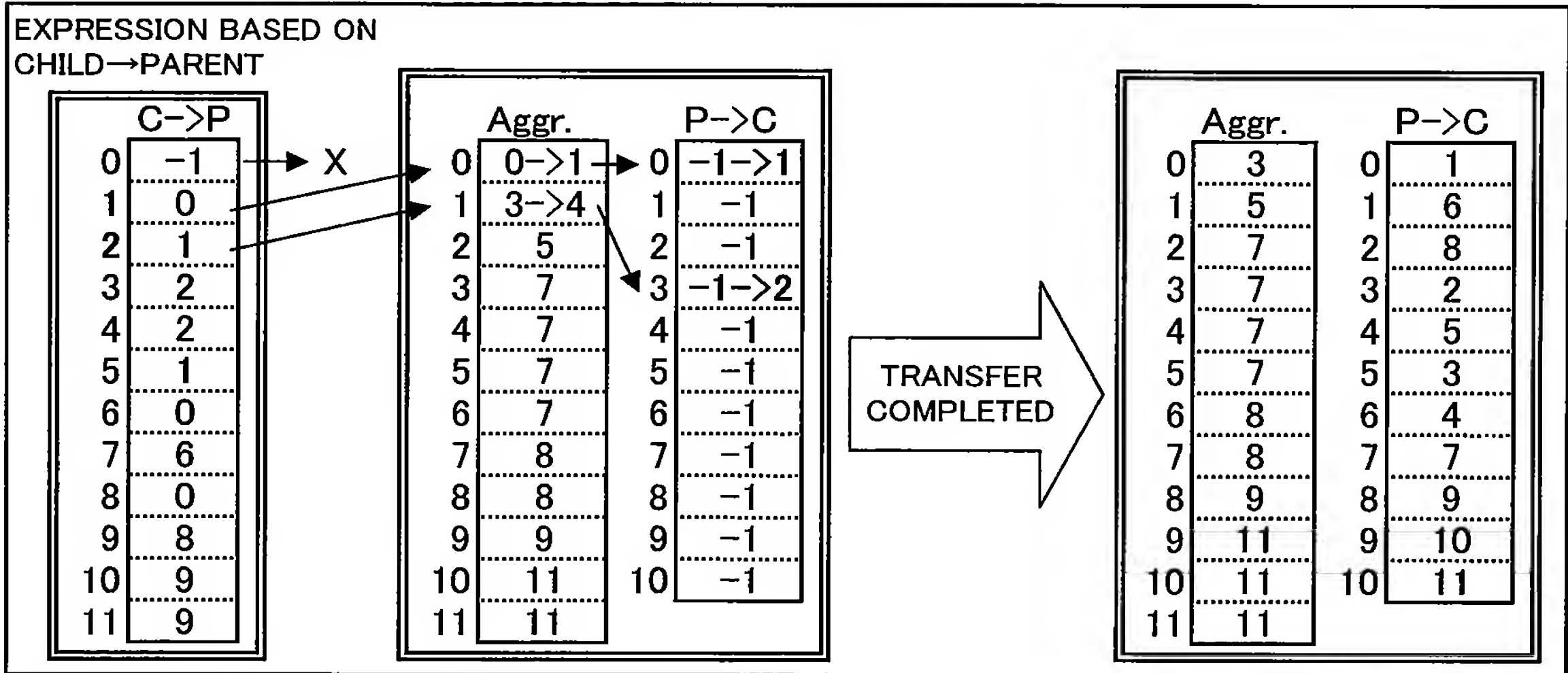


Fig.47B

PROCEDURE 5: RETURN OF ARRAY Aggr TO STATE BEFORE NODE NUMBER IS TRANSFERRED

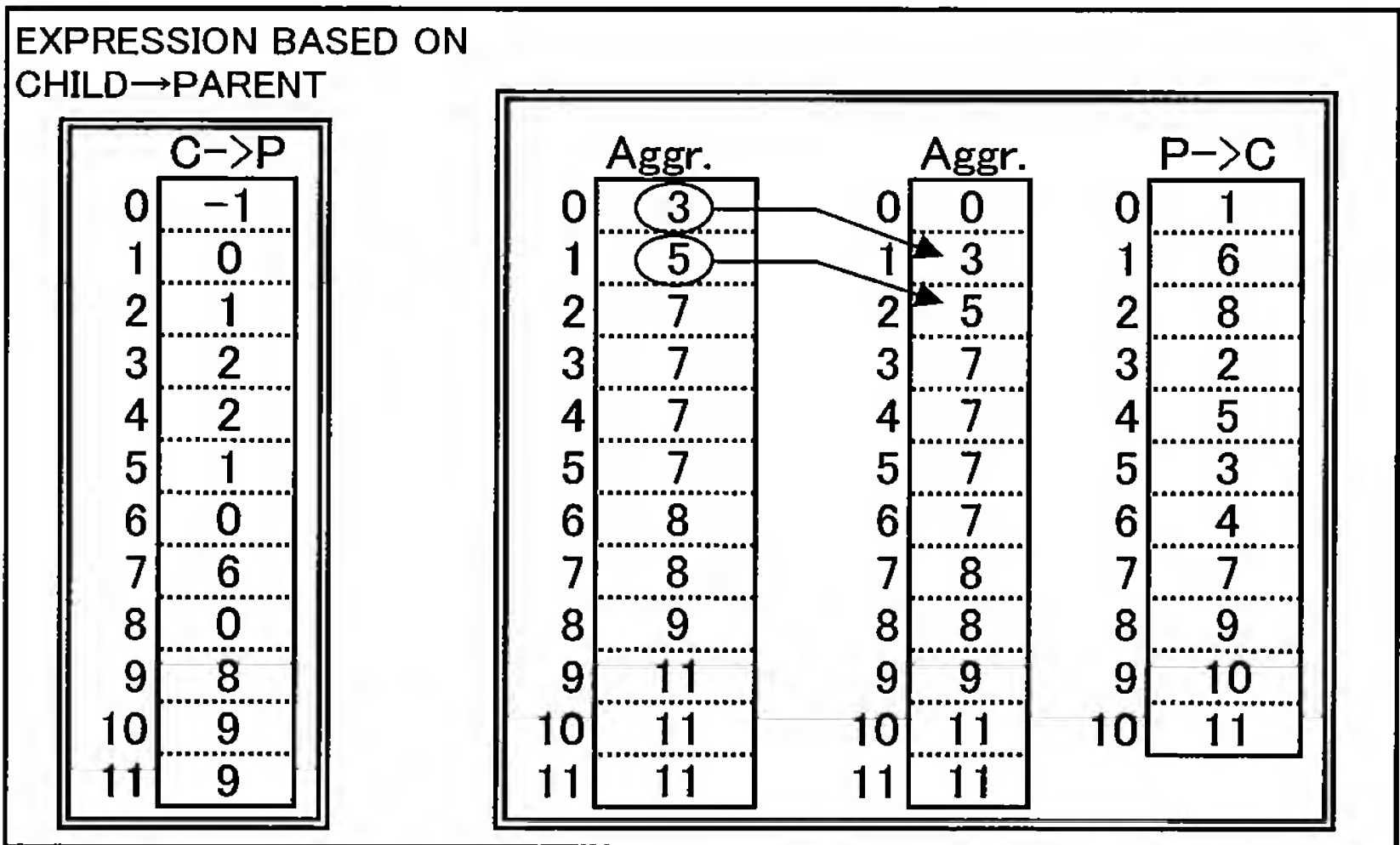


Fig.47C

CONVERSION RESULT

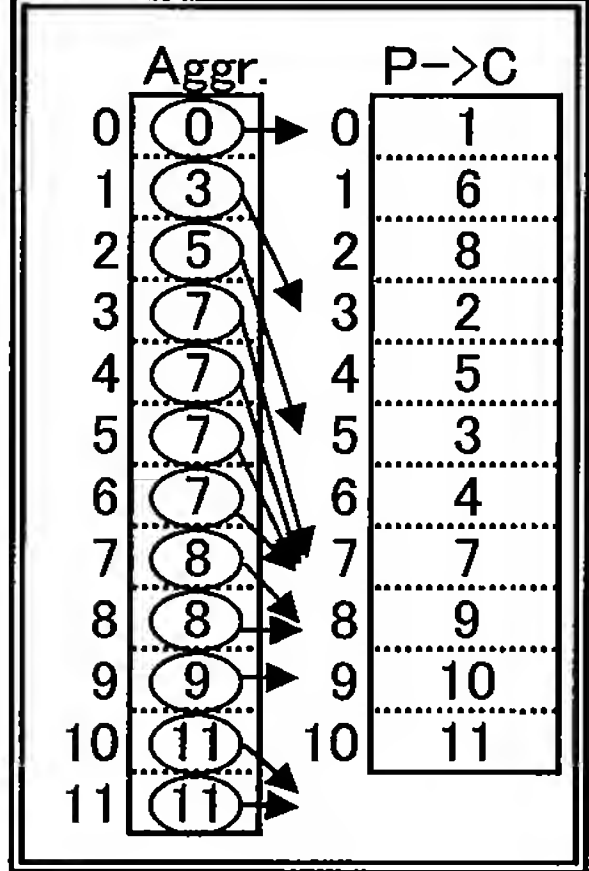


Fig.48

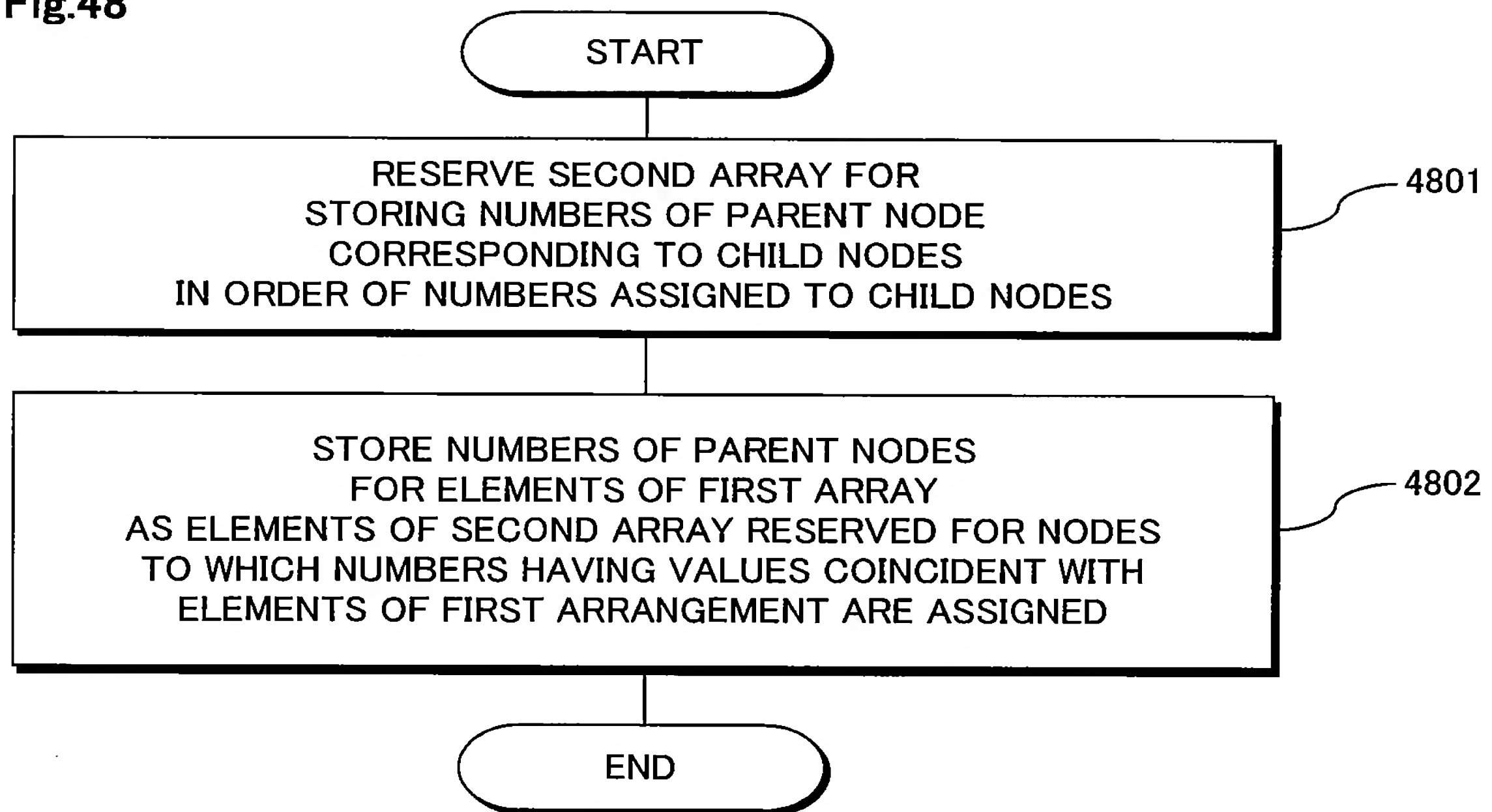


Fig.49A

PROCEDURE 1:

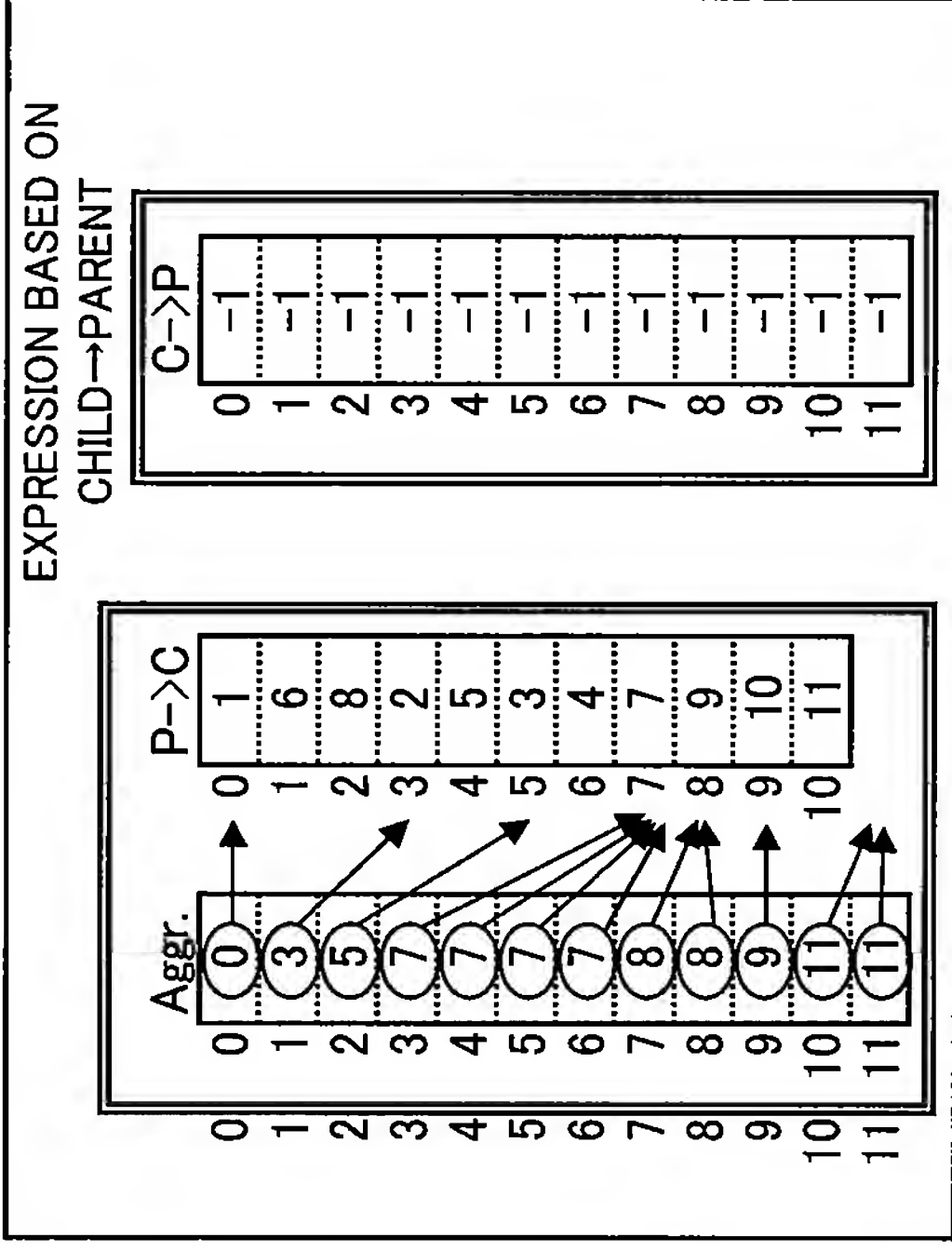


Fig.49B

PROCEDURE 2-1:

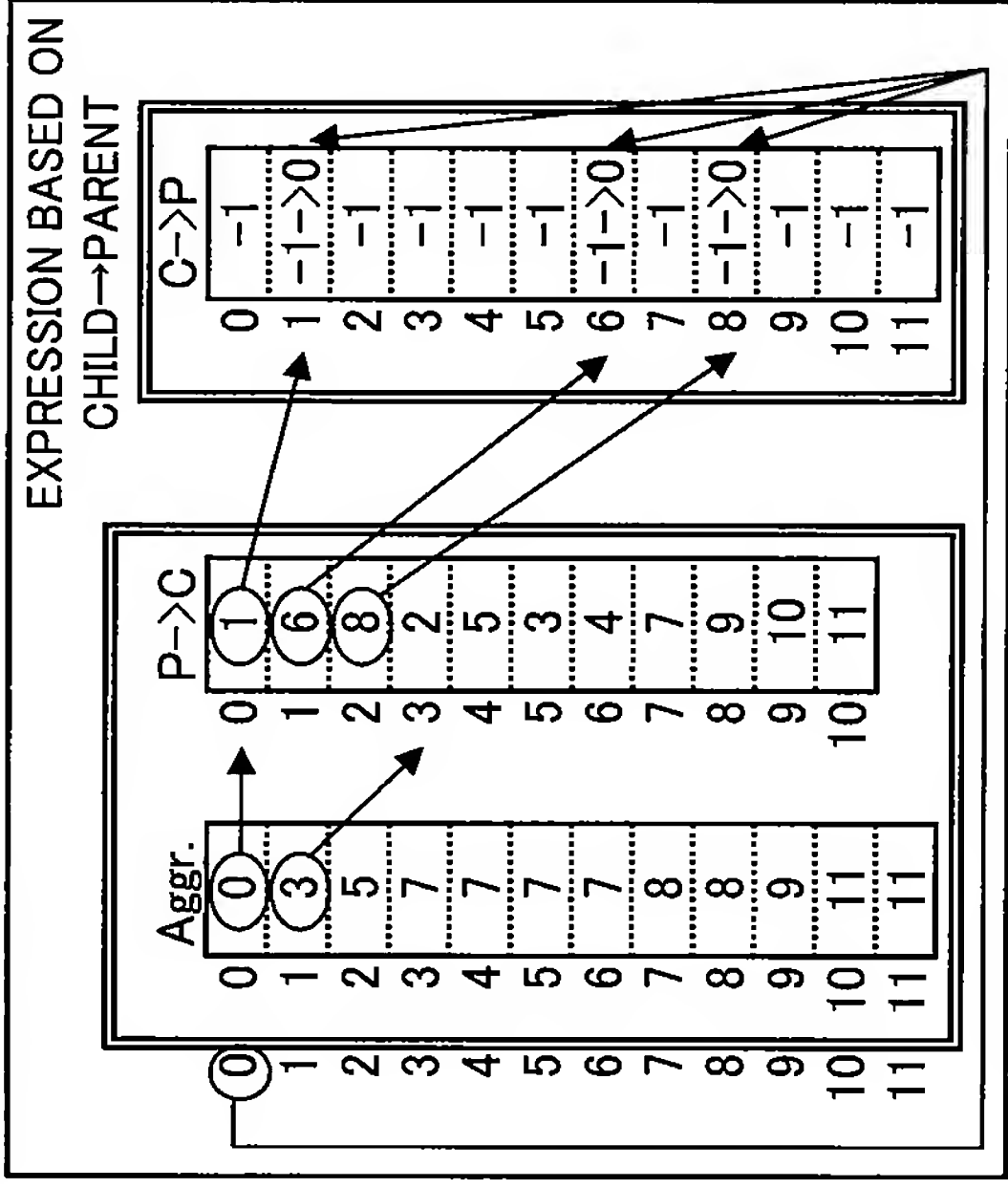


Fig.49C

PROCEDURE 2-2:

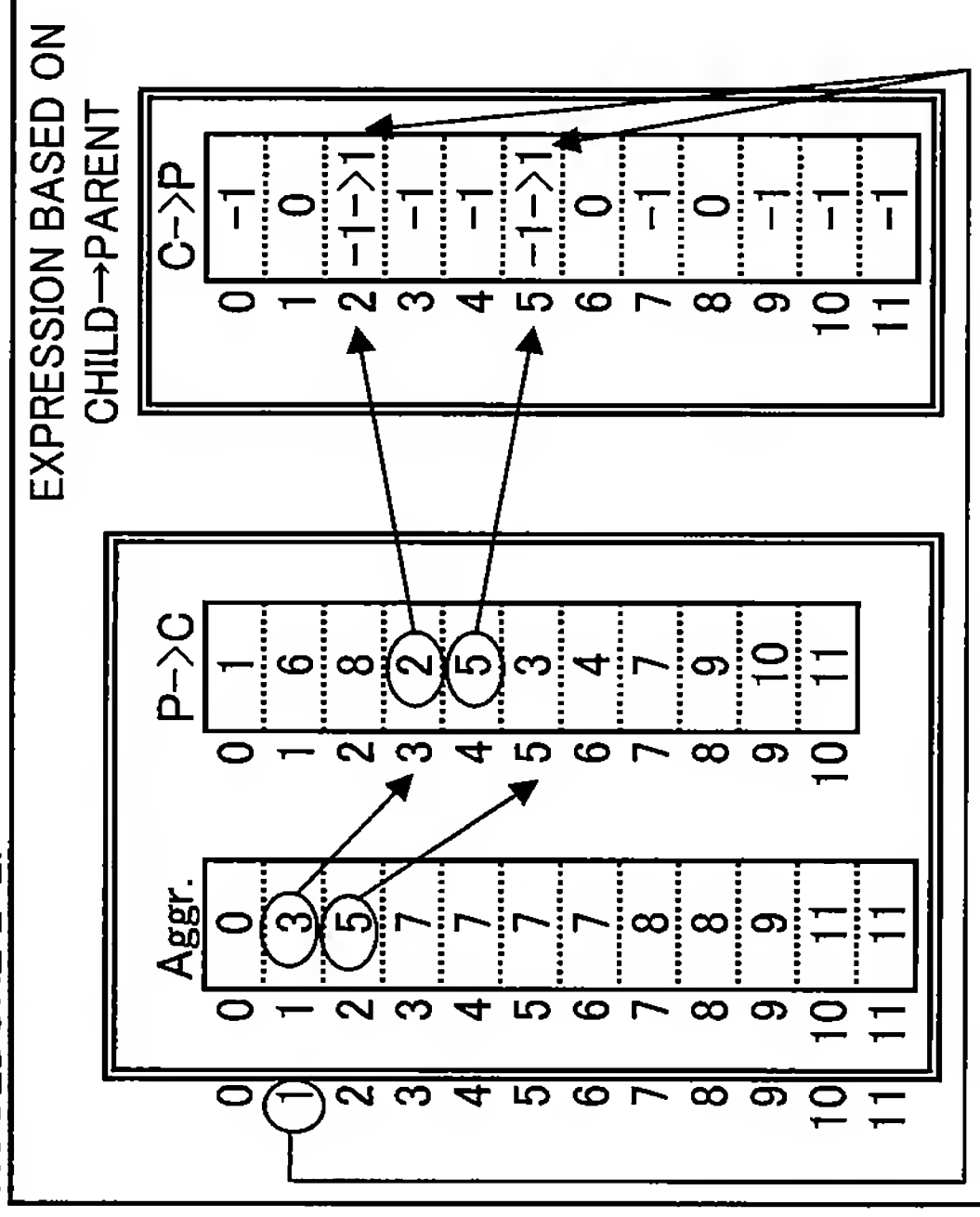


Fig.49D

FINAL RESULT
EXPRESSON BASED ON
CHILD→PARENT

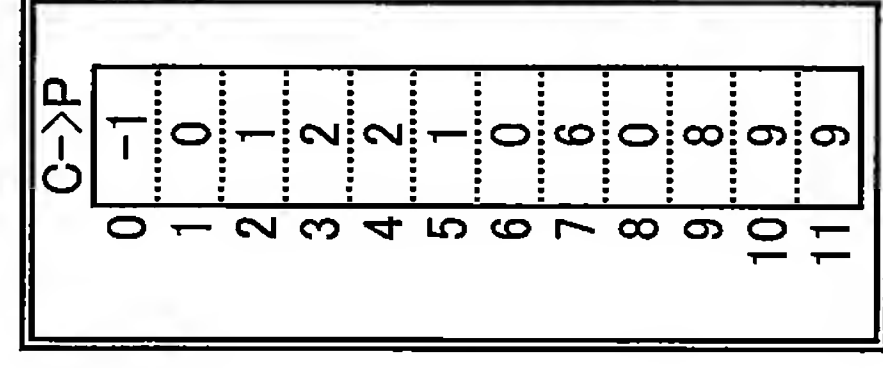


Fig.50

